STOP CHECKING THE PRICE!

LOSE MONEY EVERY TIME YOU LOOK AT THE STOCK MARKET? THE SIMPLE INVESTING STRATEGY FOR BEGINNERS TO PICK WINNERS BY TRADING ONLY 4 TIMES A YEAR!

J. F. DODARO PhD

STOP CHECKING THE PRICE!

LOSE MONEY EVERY TIME YOU LOOK AT THE STOCK MARKET? THE SIMPLE INVESTING STRATEGY FOR BEGINNERS TO PICK WINNERS BY TRADING ONLY 4 TIMES A YEAR!

J. F. DODARO

First Principles Publishing
Compounding Knowledge

Published by First Principles Publishing

https://www.firstprinciplespublishing.com/

ISBN: 979-8-3874-3386-3

Disclaimer: The information provided in this book is for informational purposes only and is not intended to be a source of advice or credit analysis with respect to the material presented. The information and/or documents contained in this book do not constitute legal or financial advice and should never be used without first consulting with a financial professional to determine what may be best for your individual needs.

The publisher and the author do not make any guarantee or other promise as to any results that may be obtained from using the content of this book. You should never make any investment decision without first consulting with your own financial advisor and conducting your own research and due diligence. To the maximum extent permitted by law, the publisher and the author disclaim any and all liability in the event any information, commentary, analysis, opinions, advice and/or recommendations contained in this book prove to be inaccurate, incomplete or unreliable, or result in any investment or other losses.

Content contained or made available through this book is not intended to and does not constitute legal advice or investment advice and no attorney-client relationship is formed. The publisher and the author are providing this book and its contents on an “as is” basis. Your use of the information in this book is at your own risk.

To my wife Fiona,

Who encouraged me to pursue my writing passion and helped with this book every step of the way

CONTENTS

JOIN THE FREE NEWSLETTER

Compound Knowledge:

Compound-Convex Living In A Complex World

For more investing content, please sign up for our **FREE newsletter** using the link or **scanning the QR code**. We explore the ideas of this book in more depth, learn ways to improve the strategy for even better returns, and provide the latest updates on educational resources, financial data tools, and upcoming books to help your wealth-building journey. Let's *compound knowledge* together. See you there!

OceanofPDF.com

1

INTRODUCTION: THE PIXELATED TRUTH

You open up the app on your phone. You log in the account on your computer. You check the price... *down again*. Just like the day before, and the day before that. A burst of good luck here and there, but things never seem to just move smoothly in the direction you want. These are good companies, *right*? Everyone else certainly seems to think so. They make a good product, the founders are super-rich, and you have a good feeling about their future growth potential... And yet just by *looking* it feels like you have single-handedly pushed the price down further! Forget *growing* wealth — it's hard enough to *preserve* wealth! Could it be time to switch over to that stock you keeping hearing about in the news? The price just keeps going up... What if that was the good company all along?

You ask yourself: did I not do enough research? Maybe if I had dug deeper I would have discovered some hidden gem in their business model, bought in early before everyone else, and would already be living the good life by now! Is "buy low, sell high" really this complicated? If the talking heads on the daily news say the crash is right around the corner, should I be getting *out*? Or does that mean it's time to get *in*? What if my next pick crashes again! But don't you have to take the big risks to get the big rewards? At some point you feel so frustrated you even contemplate pushing all your chips into the latest crypto buzz coin – that is how your friend of a friend of a friend made their millions... Or so it feels that way.

If you have asked yourself any of these questions, then welcome to the club. We live in an *information overload* society, and the noise

does not work in our favor. We're all led to believe the secret to financial success in investing is *more information* – not just a tip-off about a new ticker making waves, but the deep dives: plunging into the depths of financial data to find patterns in the numbers. Spending hours learning about the business model, the company's competitive "moat," the executive team's vision, the latest earnings growth numbers. Surely at some point we will have enough information to make the right bet on the right company. But if more research is the key, then how can any of us keep up? Warren Buffett starts his morning with stacks of newspapers and reads 500 pages every day. There are countless investors, traders, and analysts who spend all day studying every single detail about your favorite stocks – how could we possibly compete and work harder than someone who's full-time job is to live and breathe the stock market? With the news constantly changing every day, we are then shoehorned into two solutions. The *first* solution is to find a financial advisor to handle our money for us: get someone who knows the ins & outs of the markets. Someone who is watching every time the Fed chairman sneezes, who knows when it's too volatile, how to diversify, which companies are going to take off next year... and yet after their fees and bad picks we end up worse off than the market! So the *second* solution is to let the broader market handle our money for us: buy a low-cost index fund, tell yourself that *no one knows anything*, and ride the waves up and down with everyone else... compounding so that we can all retire with $1 billion in our account in the year 3000.

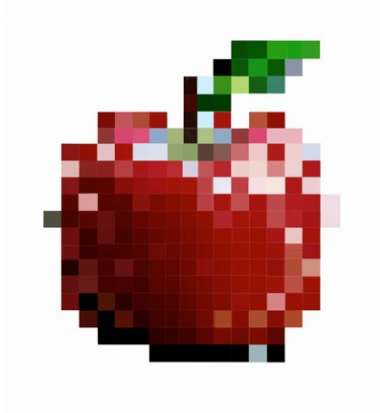
So we have information overload, handing cash to the money manager, or riding the index with everyone else... How about Choice (D) – none of the above! Let me paint a *different picture*: any time someone gives you a stock ticker, you can evaluate the company in 60 seconds. You don't even need to know the details of what they do, but you can already decide if this company is a *hard pass* or a good investment worth learning more about – maybe even another minute of your time. You don't need to check the

stock price daily or keep up with the nonsense news trying to explain every price fluctuation. Every 3 months you reassess your portfolio, let the good companies come to you, and make trades if necessary... then go about your business for the next 3 months knowing that you are invested in *good companies*. Your stock research time and effort is reduced by 99%, yet you are still confident you have enough information to make decisions on your own.

I want to tell you the ***pixelated truth***: the stock picking game is not about how much you know, but about how much you knowingly choose *not* to know![1]

Think of information just like an image on your phone with *pixels*. If you want to learn more, then you just *zoom in*. But as you keep zooming you will eventually be stuck looking at a blur… a single pixel that carries barely any information on its own. No matter how closely you stare at that pixel, you don't learn any more about the important features of the image. Even by spending hours zoomed-in analyzing every single pixel in detail, you would have a hard time understanding the image as a whole since you cannot easily see how it connects to the bigger picture. If you can understand this idea, then you have already captured the essence of this book!

Everyone and their dog has a theory for how to beat the market. The simple strategy we discuss here is not designed to factor in all of the complexities of the world – quite the opposite. The strategy is to remain as agnostic as possible to avoid overinterpreting the blurred pixels all around us. We want to avoid being drawn into narratives that sound good, but don't actually carry useful information or predict the future. In that sense, the power comes from *not checking*.



Forbidden fruit from the tree of pixelated knowledge.

Bring Great Companies To You With 99% Less Effort

The detective Sherlock Holmes uses logical reasoning and *deduction* to crack the case: “When you have eliminated the impossible, whatever remains, however improbable, must be the truth.” Deduction means drawing specific, logical conclusions from general assumptions. This is the opposite of *induction*: starting with the specific and trying to expand to the general. Deduction can also mean to reduce, to subtract – it is about what you *remove* from the problem to get a clearer perspective on what is left. This strategy doesn’t just work for solving murder mysteries; it is the best approach to cut through the noise. It is the bedrock foundation on top of which our stock picking strategy is built. By filtering the useless information, biased narratives, and meaningless predictions about the future we are left with simple, meaningful, and measurable facts.

Peter Lynch, one of the greatest investors of all time, suggests “investing in what you know” because that little slice is where you have an edge. That is *inductive* thinking: you look at the world around you and try to collect the specific stocks as you encounter them. But more troubling, that approach can become *narrative-*

dependent. You must tell yourself a story about how you personally experience the company, which may not be the reality of the bigger picture. Anecdotal evidence is powerful, but we need hard numbers, not emotion and story-telling, to back up our bets.

Instead I am advocating for a contrarian position: *invest in what you don't have to know – and don't bother learning it!* We are investors, not subject matter experts on everything we invest in… and even if we *were* subject matter experts, we are not the ones in the boardroom making decisions about the future of the company… and even if we *were* in the boardroom making the decisions, we cannot predict the future anyway! No one knows what will happen next, so why miss opportunities outside of your area of expertise?

In this book we follow a deductive approach: start with the whole universe, the entire stock market, including all of the information that you *don't know*. The strategy is then very simple: remove the rotten apples (bad companies) so they don't spoil the whole barrel (your portfolio). We put the famous "80/20 Rule" into practice, compressing information, so that we can quickly & efficiently filter the bad apples with a fraction of the effort. In fact, we will simplify to a *single number* that determines if a stock is good or bad! We will see how trading only 4 times a year not only makes it easy to manage a stock portfolio, but avoids overtrading on information overload to stop hurting our long-term growth. We will learn how to take a snapshot of any stock, reducing the entire business to a *single image*, and form a quick opinion using measurable and meaningful information.

This is *by no means* the only stock picking strategy that works; it's a big market and there are many ways to win – and lose. Plenty of investors have proposed various stock screens, but these can get so complicated, with dozens of parameters, that great business babies are thrown out with the bathwater. There will always be the computational whiz-kid method searching for hidden correlations in the noise, as well as the lotto ticket YOLO (gambling) approach,

that will get great returns for someone out there. But don't catch the FOMO – the "Fear Of Missing Out!" My goal is to give you an easy-to-follow strategy that doesn't require hours upon hours of deep-dive research, wasting time listening to earnings calls, and burying yourself in useless information along with armies of stock analysts. Let's be clear: this strategy does not guarantee you will beat the best of the Buffetts out there who spend their day combing through every footnote of every report. But it does guarantee much more time to enjoy your life while knowing you are in control of your own wealth and invested in companies creating long-term value.

Why I'm Writing This Book

When it comes to finance bona fides, I would say my background is a bit... unconventional. In college I studied applied mathematics because of my love of understanding how simple equations could predict complex patterns in the real world – from the movement of planets, to the population of rabbits, to the value of financial derivatives. This last topic was very popular among my peers, and most of them headed straight to Wall Street where they could quickly make a shiny penny. I took a different path and got a PhD in physics where I learned the power – and limitations of – complicated math. I founded a clean energy startup in Silicon Valley, raised venture capital, and saw the VC investing style in action: searching for the next disruptor to provide explosive returns. I entered the world of finance through a trillion-dollar asset management firm working on a portfolio team managing an 11-figure fund (over $10 billion) picking large public stocks. I learned investing approaches directly from industry insiders with decades of experience navigating multiple business cycles. Despite my mathematical background, I got an appreciation for *fundamental* investing: analyzing companies as value-creating machines rather than a price flashing on screen.

> *"The biggest money made in Wall Street in recent years has not been made by great performance, but has been made by great promotion"*
>
> WARREN BUFFETT

While working in finance is a great way to study the stock market history from the people who lived through it, you can't help but see how the sausage is made... It's striking to look up the performance of large funds across all of the big investment banks and asset managers to see their history of underperforming the market showcased right on the front page. I remember looking up one company's "flagship product" touted for its many decades of implementing a long-term growth strategy. And yet plain as day, the annualized return over 50 years was 9% while the S&P 500 over that same time period (reinvesting dividends) had an annualized return of 10%... If 50 years is not *long-term* enough to beat the market, then I don't know what is! And by no means am I the first to notice this: to quote from Jensen's study[2] of performance from 1945-1964:

> "*The evidence on mutual fund performance discussed above indicates not only that these 115 mutual funds were on average not able to predict security prices well enough to outperform a buy-the-market-and-hold policy, but also that there is very little evidence that any individual fund was able to do significantly better than that which we expected from mere random chance.*"

And that is *before* management expenses... *Yikes!*

I'm writing this book because I feel there is a story to be told that

doesn't fit into the money manager's narrative – that picking great companies doesn't have to be a full-time job outsourcing your own wealth management *if* you know how to filter the noise. I have my own *skin in the game* based on this strategy for the long-run and am sharing it with you simply because I love to write, I love to explore ideas, and I love to test them rigorously – especially with a contrarian perspective shaped by my scientific background. I truly hope that it provides value to you and our incentives are aligned.

It is against my beliefs to hide in an office and cash bonus checks from fees while underperforming the market and losing customer's money. Go read "*Where Are The Customer's Yachts*" to understand how endemic this is to Wall Street. I want to put these ideas out in the open for critique so that you can judge for yourself and we can *create value together*. For the record, I'm not worried about anyone "stealing" my strategy – a suspicion that is very common in this business – as though there is a secret formula you need to protect from prying eyes. As advertised in the title, this strategy is *super simple* and all of the necessary information is easily accessible with a quick online search. However, sticking with any strategy comes down to *mindset*, and that requires an internal search — something you can't google.

What This Book *Is Not*

Let's be clear from the outset: this book is *not* an introduction to the stock market, *not* an introduction to ETF & mutual fund fee structures, *not* an introduction to tax-advantaged accounts, *not* an introduction to index investing, dollar cost averaging, or dividend reinvestment strategies... It is *not* an advanced course in value investing for you balance sheet warriors out there looking to fine-tune your models with minutiae. It is *not* about how stocks compare to real estate, which cryptocurrency is about to explode, or how to get rich quick by technical analysis & day trading. After reading to the end of this book you will not have abs, $10 million

in the bank, and the ability to remember all of your passwords – unless you had that before you started reading.

This is also *not* a book copied and pasted from a Wikipedia article sprinkled with quotes from Warren Buffett and Peter Lynch – I'm tired of seeing investing books that say a whole lot without saying anything at all! (though I am very guilty of including Buffett and Lynch quotes – some really are just too good...) A ton of great information can be *found easily online* to answer the basic questions, so I recommend starting there if you are brand new to investing. You should understand why stocks, as ownership of a business creating value with productive assets, are a great long-term approach to building wealth.

I've checked out other books and they range in quality and approach. First of all, "buy low, sell high" is *not* a strategy any more than "put the ball in the net" is a strategy! And yet you'd be surprised how many investing books end up saying exactly that: trade based on the price moving in your favor... OK, and when it doesn't? Plenty of books will say some variation of "buy companies with good growth, quality, and value," but with nothing clearly actionable. Instead they just repeat generic investing koans interpreted from nebulous comments by the financial monks. Give me something concrete! Others have a bit more substance: buy fast growers and hold, buy wide moat companies and never sell, balance this and that index fund – and others just say "buy what you use every day" if you like it… These are (1) super qualitative, (2) too general, (3) assume they are the only investing style in town, (4) seem to benefit from more deep dive research – not less. Let's just be honest: "buy and hold forever" is a *silly* strategy. Long-term investing is the key to success because of the (sometimes confusing) mathematics of compounding. Yet if we don't know *why* we are holding, then we will never know *why* we should sell. If you have ever experienced the bubble popping on your favorite stock pick, then that gut-punch-feeling is all the reason you need to

understand there has to be more to a strategy.

So then *what is this book about* already?! Let's just come out and say it: we all want solid returns with little work! This is a book on how to pick stocks – in particular, a step-by-step guide for a simple strategy to ***pick great companies*** **while reducing your stock research and trading time by 99%**. We will see exactly what "great companies" means for this strategy right down to a single number. You won't find "101 different strategies for you to consider" – this is based on my own strategy, with my own skin in the game using it, presented to fight in the *colosseum of ideas*. You can judge it for yourself and walk away (hopefully) with an interesting perspective motivated by some scientific thinking.

The strategy is based on the idea that "less is more" when consuming information to evaluate a business as a long-term investor. It's a controversial perspective, but one that properly respects the pixelated truth: even with all of the information in the world, we can't predict future stock prices. We will learn how to implement a specific strategy using a deductive approach: constrain possibilities, filter the noise, and let the good companies come to us by quickly throwing away the bad apples. We will look at the VC's playbook to learn the advantage of going small. We will learn how to play doctor and diagnose any stock in 60 seconds by looking at the company's complete medical history. Lastly we will see how there is really no secret here: just like diet & exercise, achieving financial success comes down to mindset. If that sounds good, then let's dive into why we should ***stop checking the price!***

2

WHY DO WE LOSE EVERY TIME WE LOOK?

This is a simple question that has many answers. A physicist might say that, like Schrodinger's Cat, we are in a state of quantum superposition – both winning and losing money at the same time; it is the action of observing our accounts that causes the stock price wave function to collapse – and *collapse it does!* Perhaps, but here are three (slightly more realistic) reasons for why we lose every time we look:

- *Overloading*
- *Overtrading*
- *Overwhelming*

Can you think of an opportunity that you got into at *exactly* the right time only to get out right before the stock went to the moon? Yeah, me too. Studies show that excessive trading, beyond reasons like tax loss harvesting and portfolio rebalancing, ends up hurting our returns.[1] From 1996 to 2015, trading between asset classes has hurt the average investor by returning only 2.1% per year (not even beating *inflation*) while stocks returned 8.2% per year.[2] This is not surprising: it's easy to get overloaded with short-term fluctuations that distract us from the long-term trends backed (at least in part) by solid company fundamentals. Maybe the price was moving around *too much* and we got scared; maybe the price wasn't moving *at all* and we got bored. Either way, the fact is that we second-guess ourselves and it ends up costing us.

The third reason, *overwhelming*, gets into the psychology of investing through "loss aversion." This cognitive bias describes how the psychological pain of losing is more intense than the pleasure from winning. This win/loss asymmetry is well-understood in behavioral economics through the "prospect theory" of Kahneman & Tversky[3] and is connected with the "negativity bias" we are all familiar with: 9 likes and 1 dislike makes us feel like failures! There are 252 trading days in a year; if we check the stock price once a day and find it down 126 times and up 126 times, in our minds it *feels* like we are losing more often – even if we end up making a positive return.

We will learn how to get over the "3 Overs" with an *information diet* (picking better stocks), an *information fast* (trading less often), and an improved mindset. But it turns out our instinct for being overwhelmed asymmetrically by losses actually holds the key to being a good investor... We already have the most important law of investing hard-wired into our brains!

Avoid Huge Losses To Gain Long-Term Wealth: The First Law Of Investing

Let's take a step back and start with the biggest question of all: *why are we here*? Because the explosion of millions of stars scattered atoms throughout the galaxy and formed planet Earth with conscious life able to ask such a question? *Nope!* We are here to maximize long-term returns – that is the simple goal of investing. Buy low and sell high, right? *Duh*, but the mathematics put a sharp point on this made perfectly clear in the following meme from Reddit's “wallstreetbets” page. *Doctor Who*'s Clara Oswald poses a question to the Doctor: “Is 200% a lot?” The Doctor answers: “Depends on the context… *Gains*? No… *Losses*? Yes…” The Doctor is right; the universe speaks in simple yet profound truths – just like a good meme.

Compounding means that gains create more gains, but when we run the math in the reverse we realize that we need a 25% gain to recover from a –20% loss, a 100% gain to recover from a –50% loss, a 1,000% gain to recover from a –90% loss… and it is *game over* with a –100% loss. The goal of investing is then to maximize long-term returns ***by avoiding huge losses!*** Our brains already understand this: the negativity bias sets off alarm bells from the small loss, but gives the small win a nonchalant yawn. The timeless wisdom for building wealth rings true: "a penny saved is a penny earned" — it just turns out that saving a penny protects us from more pain than earning a penny would have given us as pleasure! As Warren Buffett so eloquently puts is: "Rule #1 is Don't Lose Money. Rule #2 is Never Forget Rule #1." Wealth *preservation* is the key to long-term wealth *growth*.

Rethink The Risk-Return Tradeoff

If the goal of investing is to maximize the long-term return, and the math tells us that the biggest impediment to that goal is massive drawdowns, then we should think a bit more carefully about what we mean by the term risk. After all, we are taught that we can get high rewards if we want, but it must come at the

expense of high risk — the "risk-reward tradeoff" of modern portfolio theory. Portfolio managers investing tens of billions into public companies have to sit through meetings with "risk analysts" who explain to them where all of that risk is hiding. They measure risk through price volatility,[4] the noisiness of the price movements as it jumps around from one day to the next. The suggestion is then to reduce volatility by diversifying with stocks that are "uncorrelated." This comes at the expense of reducing returns, but there is a bigger problem: correlations may be low when it doesn't matter, but high when it does — when things crash, they crash together! So we reduce our upside without really decreasing our downside — we have successfully have "*Di-Worsified*," as investor Peter Lynch would say, to appease the imaginary risk-reward tradeoff gods. I've sat in these meetings and feel those analysts are missing the forest for the trees!

Starting with the definition "Risk = Price Fluctuations" certainly makes the job easy for the risk analyst: they just let the computer do some simple averaging of numbers. The real risk is *blowing up* and losing all your money, since it's impossible to recover. But expecting the unexpected is a much harder task. Rather than thinking of the risk-reward tradeoff as swapping higher gains for lower price fluctuations, we should be thinking of the max loss as the relevant measure for the riskiness of our decisions.[5] With this definition "*Risk = Losing It All,*" and that is what actually matters! This is a point that Nassim Taleb beats home in his books,[6] which I highly recommend for the interested reader as they were fundamental in shaping this strategy and my own investing worldview.

> "*Risk only comes from not knowing what you're doing.*"
>
> WARREN BUFFETT

So the takeaway is simple: *the best offense is a strong defense* when investing for the long-term. As a consequence, reducing the max drawdown is the same as reducing the long-term risk, which is the same as increasing the long-term reward. It is wrong to think in terms of a tradeoff — increasing risk to increasing reward. Instead we should view it as the same goal: ***lower risk to increase reward!*** Practically speaking, that means avoiding large losses at all costs. For a great read on rethinking the risk-reward tradeoff, see Spitznagel's "*Safe Haven*" book that goes into gory detail about the importance of the logarithm function in investing, insurance, and gambling.

CAGR Is King

In the finance world it is common practice to "bury the lede" by using all sorts of misleading metrics to characterize performance: returns only from the last 3 quarters (recency bias), returns starting from my birthday and ending on your birthday (arbitrary start/stop dates), returns over the last 5 years ignoring that one month with the once-in-a-lifetime crash. I've got a four-letter word for those people... No, seriously I do: CAGR. The ***Compound Annual Growth Rate*** — the annualized growth rate which is the only metric that really matters for long-term investing. Unlike the usual average computed by adding up and dividing by the total number of numbers (arithmetic mean), the CAGR calculation involves *multiplying* the numbers (and taking to the n-th root, where n is the number of numbers — this is the geometric mean). This is the math behind why we want to avoid large losses, and the reason is clear by going to the extreme case: a loss of -100% means a return of *zero*, and anything *multiplied* by zero is still zero! It doesn't matter whether that happened last year or 100 years ago — you can't sweep the past under the rug because of this multiplicative property of CAGR.

Example: Let's say over 3 years your strategy returns +60%, then

+60%, then –60%. The (arithmetic) average of these numbers is 20%... But that is not how much cash you have in your pocket! After 3 years you would have an annualized return of *less than 1%!* Since CAGR is telling you what is actually in your pocket after repeatedly compounding both gains and losses, it is the real way to judge long-term performance – a single number that describes the entire history of a strategy. And that is why *CAGR is King!*

Avoid Information Overload: The Second Law of Investing

A Terminal Case Of Information Overload

I remember my first time using a *Bloomberg Terminal* — the powerful financial data platform that provides just about *any* information you need related to the stock market. You feel like a wizard with immense power at your fingertips... Need to see a real-time map of oil tankers in close proximity to fertilizer manufacturers along the Philippine tectonic plate? Need to know the latest social media sentiment for major news on base metals trending in Angola? Or maybe you just want to do some luxury shopping for your next Rolex or McLaren on an internal rich man's Craigslist? The Bloomberg Terminal has got you covered! I'm still trying to find the function that says what color socks the CFOs of German pharmaceutical companies wear during Oktoberfest.

A representative helped set up my system by covering *every single corner* of my giant multi-monitor display setup with information (in the tiniest font, no less) — and not just stock prices... Calendars for various government bureau press conferences, institutional ownership of the top companies in the tech sector, the latest info on global indices, earnings announcements, analyst ratings, commodity prices, and on and on... By the end of this process there was nowhere left to hide: the information was staring me down, bright lights and colors flashing with urgency, stealing all of my attention and melting my brain to mush. And yet I couldn't help

but feel this was completely *intentional* — to make me feel that if I wasn't soaking up every data point on the screen, then I was missing out on information that the rest of the market was already incorporating into their models and pricing into the stock...

The Bloomberg Terminal is used by *everyone* in the finance community... And I mean everyone. Yet I saw again and again how even veterans of the industry, the experts with gray hair and decades of market wisdom, did not use this technology to its full potential — not even close — since they were being inundated with *other* platforms, software, applications, and tools giving them ever more information in ever more detail. As if that wasn't enough, there is an entire sub-industry whose sole purpose is to max out your inbox's memory limits with the news: analyst reports on impact of the tax bill on consumer's spending habits, the uranium metals market in South Africa after the latest soil report, and updated target prices on defense industry stocks after the dictator of Lower Slobbovia caught a cold. There were literally a dozen emails all telling me how the market performed that day, the same exact numbers... as though I couldn't check it on my damn Bloomberg Terminal!

All around me, everyone I interacted with was under this unremitting barrage of information and somehow seemed to function normally and adapt to the noise. All of the big-shot portfolio managers moving around billions of dollars had (I believe) good intentions and aligned incentives to grow their portfolio. These were smart people, walking encyclopedias accumulating facts from the noise, but they thought they were even smarter than they actually were by unwittingly accepting that years of being steeped in stock market news all day long makes them more informed... *Yes*, they were certainly more informed about the business details than everyone else outside the world of finance, but it is an unstated assumption that these details translate into better stock picking CAGR over the long run.

The portfolio managers then surround themselves with brilliant analysts who are eager to share their critical insights. A good analyst could recite a company's balance sheet as though it was written off the back of their hand, but more impressive was how they thought deeply through each company's business model and put it in greater context. These analysts could smoothly weave a *narrative* from the marginal customer to the global macro forces affecting the company, explain the current situation, and confidently pontificate on the future. It's like listening to a master sports commentator narrating a replay of the goal, pinpointing all of the players' positions on the field, to explain precisely how the goal was scored… You are led to believe that every movement was necessary and deliberate to achieve the final result.

And yet I found myself wondering about the *pixelated truth*: how zoomed-in does an analyst (or anyone else) really need to go see the big picture – if at all? The analyst's bonus depends on them proving to their boss's boss's boss's boss that each and every blurry pixel contains valuable information — and that they, as the analyst with all the pixels at their fingertips, are therefore holding that valuable information. When a pixel goes dark or looks out of place, we look to the analysts and their noise, we get *fearful or greedy* by believing that one little pixel is telling us something important about the big picture. The information overload becomes a destructive force hiding under the illusion of valuable insights. It's our job to zoom out and ask ourselves how much of this information is actually valuable for us as investors to find good businesses that can adapt and thrive in an unpredictable future.

Information Compression And The "80/20 Rule"

It turns out there are *fundamental laws* putting limits on how much information can be communicated through an image. All of the data we receive comes in finite, pixelated form – a quarterly report here, a company update there. There is a mathematical theorem[7]

for how accurately we can know the underlying reality by only sampling pixels of data. You just can't get more out of a blurry pixel no matter how hard you try!

Rather than zooming in and squinting to make up a narrative beyond what the blurry pixel can tell us, let's ask a different question: can we *compress* the data without losing critical information? The mathematically-inclined reader can check out Claude Shannon's source coding theorem with an interesting connection to the 2nd Law of Thermodynamics and entropy. The punchline for our purposes is that, yes, *information compression* is possible without losing any information (to certain limits). This is familiar to anyone who has compressed a large file to quickly and easily send critical information – more information is not always better. This is a point that is worth emphasizing: the goal is *not* to get as much information as possible... The goal is to get *enough* information to make an informed decision while saving time and effort.

Our compression involves (1) an *information diet* that reduces consumption to avoid overload, and (2) an *information fast* by checking the market less often to avoid overtrading. Together these give us a simple stock ***filter*** based on a few variables (chapter "How To Filter Bad Companies") as well as a big-picture stock ***snapshot*** with meaningful information to quickly form an opinion on any business (chapter "How To Evaluate A Stock In 60 Seconds").

> *"We would rather multiply by 3 than by pi"*
>
> WARREN BUFFETT

So how much can we compress information to make our lives easier? The answer comes from the Pareto Principle, also known as

the "80/20 Rule" that was originally observed by Italian economist Vilfredo Pareto as 20% of the landowners in Italy controlling 80% of the land. The law is quite general: 80% of the consequences are produced by 20% of the causes – 80% of profits come from 20% of customers, 80% of productivity comes from 20% of workers, 80% of traffic is on 20% of the roads, 80% of your phone usage is on 20% of the apps, and so on. This is an example of a "power law" distribution which is ubiquitous in nature, though not necessarily for the 80/20 ratio. The nice thing about power laws is that you can iterate them again and again: we can learn 80% of the information in 20% of the time, and in 20% of that 20% time we can learn 80% of that 80% information... Iterating once more we conclude that we can accomplish ***50% of the work in 1% of the time!***

Please don't try to outsmart the law... You can't do 100% of the work in 2% of the time (or for that matter do 150% of the work in 3% of the time) because of the *diminishing return*: you have to work more while getting less out. While these exact numbers are more for illustrative purposes – you'll see just how easy it is to run the filter in the next chapter – the takeaway is that there are general principles of nature suggesting we can significantly reduce our effort, for example by 99%, and still make informed decisions based on sufficient information, for example 50%. For 365 days of the year, that means about 4 days of work to get sufficient knowledge. It turns out that 4 days a year also lines up with the quarterly report where companies provide their actual performance numbers from the last 3 months giving us a "financial checkup" for *measurable* and *meaningful* feedback on the quality of the business. This keeps us from overtrading based on the noise, and hence the sub-title: trade 4 times a year!

The conclusion from all of this is that we shouldn't waste our time sweating the details. There is a diminishing return on the information we learn – you don't need to know every detail of the

picture to know what is happening. Beyond that, there is also a diminishing return on the ability of the information to tell us about the future: even if we understand what is happening in the pixelated image, we *cannot turn it into a movie!* More on that, but first...

The Blindfolded Dart-Throwing Stock-Picking Monkey

Stop me if you've heard this one before: "*Blindfolded Monkey Beats Humans With Stock Picks*" from The Wall Street Journal in 2001.[8] If you think that's bananas, it wasn't even the only time: the 1999 chimpanzee stock picker was the 22nd most successful money manager in the US after throwing darts at 133 internet companies to construct a portfolio that returned a whopping 213% gain *and* outperformed 6,000 professional brokers on Wall Street *and* quadrupled the performance of the Dow Jones Industrial Average. The animal kingdom takes no prisoners: the same experiment has been performed with cats, dogs, cows, camels – even plants – all making random picks. These examples are said to showcase the *efficient market hypothesis*: if the market truly factored in all public information immediately, then no one would have an edge picking stocks as they move randomly – even a monkey throwing darts.[9] While these stories will never stop being hilarious, we should respect the conclusion and go in with eyes wide open (unlike that crafty monkey…). Some may take this to mean the long-time investors who continue to beat the market are just the lucky ones, we should all invest in low-cost index funds, and stock picking is dart throwing with no advantage over the random price movements…

The fact that we are exploring how to find winning stocks means we don't accept the market is truly efficient – it is a figment of the imagination like a frictionless surface, an ideal gas, and an honest politician. In terms of our *pixelated truth*, the monkey is at the opposite end of the information spectrum compared to the "expert"

fund managers who spend all day collecting stock market news. As far as the chimp's stock returns, *game recognizes game*; while we don't want to be totally blindfolded, we should admit that consuming as much information as possible about the stock market, studying every pixel, is not the path to riches – it isn't even necessary. To be fair, the proper test requires the monkey to maintain high-caliber performance for an extended period of time with actively-managed dart throws (all of the 1999 chimp's picks went out of business with the tech bubble popping). Nonetheless we will see in a later chapter how the monkey actually *does* have an edge over the market cap-weighted indices – so it isn't all monkey business.

Why No One Can Predict The Future

> *Don't read newspapers. To become convinced, go read last year's newspaper."*
>
> NASSIM TALEB

On one rainy morning in the San Francisco Bay, the biggest bank in Silicon Valley had a terrible, horrible, no good, very bad day. In its 40 year history, Silicon Valley Bank (SIVB) was the go-to bank for tens of thousands of startups at the frontier of innovation and technology, along with the venture capital firms that bet on them. I used them for my own VC-backed clean tech startup and never had any complaints about their services. But this time the venerable institution at the epicenter of high technology stepped on a rake: the bank lost $1.8 billion on long-term bonds after failing to manage the risk of the Fed's interest rate hikes.[10] SIVB planned to sell shares and raise money to plug the hole in the balance sheet so no one would panic, but the market didn't get the memo…

On March 9th, 2023 the share price of SIVB crashed to $106 during trading hours, a drop of *-60%* from $268 the day before! The carnage continued after-hours as depositors tried to withdraw their money, a classic bank run, and regulators shut down the bank the next day.

Now, banks losing comically-large amounts of money is nothing new. If history is a guide, it would be weird if they *didn't* blow up now and then (and kindly ask for a bailout from the rest of us)! What I found amusing is that this is always a *possibility*, but is never on the analysts' radar: $312 price target less than a week before.[11] $350 price target less than a month before.[12] I saw an analyst predict a price target range of $380 with a "downside" of $200 *literally two days before* the price crashed to $39. Two days after this prediction, the *bank didn't even exist* anymore and was taken over by the government! But analyst hindsight is 20/20: "the market is now pricing in solvency risk... so I will go update my model again." And if you only use price history to make your investment decisions, then *good luck* predicting a fail this epic!

Past Performance Is No Guarantee Of Future Results... In A Complex System

The efficient market hypothesis offers an explanation for why the monkey wins and analysts cannot predict the future outcomes: prices are random since all of the (public) information is already factored in. However, this makes it sound like we can bring the scientific method of hypothesis testing to the marketplace even though it requires repeating experiments under the identical conditions. Doable in a chemistry lab, but not possible in the market (without a time machine) because the world is constantly evolving. This doesn't mean science can't teach us anything here; a scientific approach doesn't just mean starting with an idealized version of the market and applying complicated models to try and predict the future. In fact, I would argue it is the opposite: a scientific approach to investing means healthy skepticism about assumptions and understanding the limitations (and error bars) of any idea.

Rather than viewing the market as unpredictable because it is perfectly efficient, I would argue it is unpredictable because it is a complex system, a collective group of buyers and sellers each with their own internal motivations. It's well-known that the behavior of complex systems cannot be predicted – from cells, to brains, to cities, to the climate. When a large number of components (molecules, neurons, humans) interact with each other, they behave in new and different ways that are greater than the sum of the parts. We can't predict what will happen from first principles; we can only observe the outcome of feedback loops, network effects, and virality that amplify small fluctuations into world-changing events resulting in... negative oil prices. But none of that stops us from asking the “experts” what the market will do tomorrow! The disclaimer "Past Performance Does Not Guarantee Future Results" is printed just about everywhere anytime a money manager makes any prediction, usually hidden in the smallest

possible font as the ultimate safety measure... This should be *obvious* – just like "Careful: Contents May Be Hot" on the microwave burrito... and yet we just keep getting burned!

Discounted Cash Flow – All You Need to Know... Nothing About!

How much would you pay for a box with $100 inside? Ignoring the price of the box itself, a reasonable person would offer up to $99, but would not buy it at $101. Now how much would you pay for a box that spits out $1 every day for the next 100 days? If you are a very patient person, then you might value the box at $100 again: the value of something *now* is the sum of all the cash it will spit out in the *future* – from now until the heat death of the universe. However, even though this box still produces $100 eventually, you have to wait a day for each dollar – and most of us are not that patient. "A bird in the hand is worth two in the bush" because searching through the bush *costs you time* – time that could have been spent on something more productive. Same with the box: cash today is more valuable than cash tomorrow, so we have to *discount* the cash in the future. That just means we divide those future cash flows by an interest rate, which represents the "time value" of money – the further away in the future, the bigger the denominator. And that's it! This ***discounted cash flow*** (DCF) calculation of adding up future (discounted) cash flows can be used to value the box in the present – as well as stocks, bonds, real estate, businesses, or any investment![13]

As *investors*, we buy stocks – pieces of ownership of a business – because we expect the business will use productive, value-creating assets to generate cash flow into the future. This is different from *speculators* that bet someone else will pay them a higher price for their share sometime in the future (passing the bag) whether or not the assets are productive. If we know how much cash the company is generating from its assets – and that cash is returned to shareholders as a dividend (or future promise of dividends) – then

these discounted future cash flows tell us the value of a share *right now*. Excellent, so then the game is simple: calculate the value of a share now, and buy if the price is below or sell short if the price is above. Buy low, sell high, buy yacht!

The unfortunate reality is that all of the subtleties, uncertainties, wins, and losses of investing get in between us and the actual discounted cash flow. We can write down the Schrodinger equation of quantum mechanics on a sticky note – a single equation that tells us how all of the particles in the universe move as a collective probability wave – yet just being able to *write down* an equation doesn't mean we can solve it in a useful way! This is lost on analysts around the world who nevertheless go ahead and plug numbers into their DCF formulas in attempts to estimate the value of a share of stock based on an unknowable future. This leads to meaningless price targets – like we saw with Silicon Valley Bank – that are simply updated when they are wrong.

So while we can write down a simple formula that is perfectly reasonable for valuing any investment, and it *feels good* to plug some numbers into the formula (which spits out an explicit share price to compare with the current market price), the other variables like growth & interest rates that enter into the calculation are a moving targets. When interest rates are increased, those cash flows in the *future* are reduced, which means the company's share price in the *present* is reduced. The value of the company craters even if the cash flows don't change. Now try predicting the future cash flow on top of interest rates and see why price targets are shaped like pies in the sky! DCF *should* tell us everything we need to know, but it requires predictions about the future where everyone has a different outcome in mind. Even Warren Buffett, the master of valuing businesses, has said that if you have to do a DCF analysis to decide if the company is undervalued, then the margin of safety in your calculation is already too close!

Key Takeaways From This Chapter:

1. The goal of investing is to avoid large losses
2. Information overload is one of the biggest enemies to investing success
3. More information doesn't guarantee better understanding of the important details or better predictions about the future
4. The 80/20 Rule tells us we can compress information to filter the noise, understand businesses quickly, and trade only 4 times a year

3

HOW TO FILTER BAD COMPANIES

Before we start our *information diet*, let me begin with an admission. I lied. I lied to you right in the title, and it's time to come clean: this is not a book about how to "*pick winners"*… This is a book about how to *avoid losers!*

One Rotten Apple Spoils The Whole Barrel

Imagine the stock market like a massive barrel of apples. We are told the secret to stock picking is finding the ripest, most delicious apple out of the whole barrel – Buffett's "wonderful company." But that would take forever to do in practice: comparing each apple to the other, examining right down to the details of texture, color, firmness, subtle flavor notes... Instead, we want to start by accepting the *pixelated truth*: we can save time & effort with an information diet that filters the noise and compresses it down to key facts. From the CAGR mathematics, we learned that a rotten apple *hurts* us more than a ripe apple *helps* us – as the saying goes, "one rotten apple spoils the whole barrel."

So putting it all together, our time & effort is best spent on ***removing the rotten apples***: those *easy-to-spot* bad companies that we can quickly pluck out of the barrel. By removing the rotten apples, we reduce our risk to increase our long-term reward; whatever is left in the barrel will be *good enough* to help our CAGR. And the best part is that, following the 80/20 Rule, we can perform this filter with minimal effort and remain confident that

we are not losing important knowledge about the future (which can't be predicted anyway). In his book *Antifragile* Nassim Taleb describes this type of approach as "via negativa": a rigorous framework to understand the world using *negative* knowledge rather than *positive* knowledge. To quote the maestro: "We know more about what something *is not* than what something *is.*" By having high confidence in what is rotten and removing it quickly, we are less likely to get distracted by the details for deciding which company is the ripest.

By focusing our attention on removing the negative, we will inevitably end up missing a lot of big wins – and that is perfectly fine! Our goal is *not* to catch every 10-bagger or 100-bagger out there in the big universe of stocks. From the CAGR mathematics of compounding, we are happy to throw away some *unripened* opportunities in the filtering process if it means we can be extra sure that there is not a single rotten apple left to spoil the rest of the barrel.

A *Good Company* Turns Money Into More Money

Time to go apple picking! We are going to introduce the meaningful and measurable numbers that give us important information on the health of the company. Let's start by acknowledging that a good company has *nothing to do with the price!* Doesn't matter if the stock has been trading sideways for a year, or if the price just exploded and is making new highs each day. The price for a share, a slice of ownership of the business, is set by the marketplace filled with buyers and sellers, each with their own emotional disposition, outlook on the company, and perspective on the future of the world. Deciding if a good company is a *good deal* based on the potential cash flows it will generate from now until the heat death of the universe is the next step. We use "fundamental" research by looking under the hood at the company's financials and *not* at the noisy price movements

fluctuating day-by-day, minute-by-minute.

So then... What is a good company? For our purposes, we will boil it down to a single number: ***ROIC*** – *Return On Invested Capital*. A good business is a *machine* that turns money into more money. This is done by investing in capital assets – factories, plants, property, machinery, equipment – that are used to *create long-term value* and generate revenue (and ultimate cash flow) for the business. Capital assets could be intangible, such as computer software, patents, trademarks, or copyrights. Companies can also raise money through:

- Equity Financing – issuing shares of common or preferred stock
- Debt Financing – taking on debt through loans or issuing a corporate bond

This provides more cash that flows into their machine – the invested capital – to keep the cycle going.

Invested Capital (IC)*:*
IC = Equity + Debt

- **Equity** = Assets - Liabilities
- **Debt** = short-term debt + long-term debt
- There are different variations for more accurate IC depending on industry (deferred tax liabilities, accrued income taxes, intangibles, etc.)

ROIC simply measures the rate of return, the profits, off of the amount of money (capital) invested in the machine. For example, an ROIC of 20% means that $10 invested in the business will result in $2 of profit each year. This is easy enough to calculate from a company's public financial statements, though the value is usually searchable online. This single number gives us important feedback

from the market (not the *stock* market, but the market of customers for the business) about how capable the business is at getting money, reinvesting into its machine, and turning it into more money. Put another way, ROIC measures how effectively the company allocates money to profitable investments.

Return on Invested Capital (ROIC)*:*
ROIC = NOPAT / IC

- **NOPAT** = Net Operating Profits After Tax = (Operating Income) * (1 - Tax Rate)
- Operating Income can be taken over the last 12 months
- Tax Rate = (Income Tax Expense) / (Income Before Tax)
- **IC** can be averaged from the beginning & end of the time period

There are of course many complicated intermediate steps: the type of money that is raised and on what sort of terms, how the money is allocated to investments, expanding the team and creating new products, marketing those products to generate revenue, running a tight ship to create profit, and on and on... But with a single number we simplify the entire story and look only at the input (invested capital) and the output (profit created from that invested capital). ROIC is both fundamentally *meaningful* for understanding the business as a value-creating machine and directly *measurable* without relying on narratives and future predictions.

So our definition is simple: a "***good company***" has a high ROIC. This definition doesn't depend on past price performance since we know the stock market can remain irrational for... a long time! Wall Street has an obsession with the growth of EPS, earnings-per-share, but that looks at the effect rather than the long-term driver of earnings: investment into the money-making machine. So let's stay two steps ahead of Wall Street's herd mentality! We use ROIC as feedback to easily monitor the *quality* of the company for long-

term value creation. It shouldn't be surprising that a high-quality investment strategy has lower risk and higher returns in the long run.[1] For an in-depth explanation of Austrian economics and the importance of ROIC, I recommend Spitznagel's *The Dao Of Capital*, which has been a major influence on my own investing philosophy and serves as the foundation for the strategy in this book.

ROIC is also *evergreen* and spans across all sectors. Maybe the biotechnology space is hot right now, maybe online gaming will be the next big thing, maybe space tourism is right around the corner, maybe ESG environmental companies will see a decades-long bull market run... Yeah, *maybe*. But timing the market's next big move only works *until it doesn't*. If we use the most general metric to find companies that can clearly turn money into more money, then we don't need to tell our filter about the latest viral app, booming sector, or emerging country. Now *don't* expect to ride the next meme stock to the moon! Instead use this as a timeless filter that gets better the longer we use it as our companies continue to create long-term value.

Example: While certain industries like pharmaceuticals and software tend to have higher average ROIC, there are opportunities everywhere.[2] Since going public in 2004 Domino's Pizza (DPZ) has maintained a very high ROIC ranging from 40-110% and continued reinvesting into their systems. As of this writing the stock returned 20X over 19 years for a 17% CAGR (even including two large drawdowns starting in 2008 and 2022). Compare this with the S&P 500 over that same time which returned a little over 3X for 6.4% CAGR. Pepperoni isn't exactly *cutting-edge* technology (besides the knife doing the slicing), but the company turned around in 2009 with great execution on marketing, going digital with delivery orders, and ultimately improving cash flow for franchisees. Yet by looking at the ROIC, we don't have to be experts on the details; just follow ROIC for long-term value creation.

We will explain how to look for trends in the chapter "How To

Evaluate A Stock In 60 Seconds," but the main idea is simple: we want a ***high and steady ROIC*** meaning the company can robustly[3] create long-term value. And an increasing ROIC with *increasing IC* is **chef's kiss** excellent![4] Question: high compared to *what*? Answer: high compared to *wacc*. ***WACC***, the *weighted average cost of capital*, is the average rate that the company is paying for money. An individual may have a high rate for a credit card and a low rate for a car loan or mortgage. A company has a rate on its capital coming from equity, paid as a dividend, and from debt, paid as interest. WACC then gives a number for the company's "cost of money." The virtuous cycle occurs when the company can raise capital to grow profits at a *higher rate* than the cost of raising that capital: ***ROIC*** > ***WACC***. This means the business is creating value – and that's what it's all about!

Weighted Average Cost of Capital (WACC)*:*
WACC = (Equity * Cost of Equity
+ Debt * Cost of Debt) / IC

- **Cost of Equity** = Dividend Yield + Dividend Growth Rate
- **Cost of Debt** = (Interest Expense / Debt) * (1 - Tax Rate)
- An additional term can be included for preferred stock equity

WACC can be plugged into a discounted cash flow model, but for our purposes we are happy with a nice *buffer* between ROIC and WACC as a sign of a quality moat.[5] We are currently coming out of a low interest rate paradigm. Companies can no longer flood their balance sheets with cheap money to grow at all costs. As interest rates *rise like the tide* and WACC creeps up, those businesses with a healthy ROIC-WACC quality moat are better prepared to weather the storm: they could continue reinvesting in themselves while still creating long-term value and otherwise have some protection if

demand falls. If the interest rate tide eventually recedes, then these businesses will profit even more.

We should be on the lookout for an *unsustainably high* ROIC. This is common for low-margin, cyclical, commodity companies like natural resources or transport services. In these cases a "supply shock" can cause prices to rise in the short term. For example, if the oil price doubles and nothing else in the business has changed (same costs to run the oil wells with the same Invested Capital), then profits can shoot up causing an ROIC jump. Similarly for an early-stage pharmaceutical company with a successful new drug that brings in windfall profits. The problem is that this high short-term ROIC doesn't mean the company has built the systems making it a good company – just as a lottery winner doesn't learn how to manage their lucky winnings overnight and ends up losing it all. We want to bet on robust companies that have demonstrated sustained high quality and can adapt to the uncertainty of the future. If a company got lucky because the profit pendulum swung their way, then we are really betting that management will get their act together and become master capital allocators; that's not impossible (if the lottery winner hires a good accountant before the weekend), but just not a bet I want to make when there are plenty of other ripe apples in the barrel.

Ticker	ROIC (%)	WACC (%)	Yea Or Nay?
TSLA	27	13	Yea
DKNG	-51	14	Nay
PLTR	-8	12	Nay
AMZN	5	10	Nay
AAPL	53	10	Yea
F	3	8	Nay
AMD	4	13	Nay
NVDA	13	13	Nay
NIO	-21	18	Nay
SNAP	-22	11	Nay
SOFI	-3	8	Nay
GOOG	22	10	Yea
MSFT	27	10	Yea
BAC	3	6	Nay
UBER	-13	10	Nay
SHOP	-13	18	Nay

Example: This table shows some of the companies that have recently been among the most actively traded (by share volume). By looking at only the latest ROIC & WACC numbers, what would you conclude about the “quality moat” of these businesses? Any surprises on the list, or is it what you would expect?

There are two other numbers from the financial statements that we will include in our stock snapshot analysis chapter ("How To Evaluate A Stock In 60 Seconds"). The first number is the "top-line" of the income statement, ***Revenue*** or "Sales," which is all of the money from selling goods and services. We will see how to interpret the revenue growth trends later, but for this strategy we want businesses that are growing their revenue *while* keeping their ROIC high. This creates a powerful feedback loop driving long-

term value creation, rather than remaining unprofitable and trying to grow at all costs. The second number is the ***Gross Margin***, which is the percentage of revenue the business keeps after paying for the cost for producing the goods that it sold. For example: if a bakery sells a cake for $50, and the ingredients and labor cost $40 to bake the cake, then the gross margin is 20%. There are plenty of other costs and ratios that we could consider, such as the profit after removing operating expenses (rent, marketing), but gross margin is a simple and intuitive number that quickly gives a sense of the business' competitive moat.

Gross Margin (GM)*:*
GM = Gross Profit / Revenue

Gross Profit = Revenue - Cost of Goods Sold

Gross Profit is the money left over after the costs for producing the goods that were sold (“COGS”).

Operating Income = Gross Profit - Operating Expenses

Operating Income is the money left over after the costs to run the business.

Net Income = Operating Income - Interest - Taxes

Net Income is the money left over after any other non-operating expenses (like taxes or interest on debt).

Retained Earnings = Net Income - Dividends

Retained Earnings is the money left over after the dividend to shareholders.

A good rule of thumb is a gross margin above 40% for a business to have a decent competitive moat, though like ROIC there will always be exceptions. As an example, last quarter XOM had a 21% gross margin selling oil, a commodity, while META had a gross

margin of 74% from advertisements inside their unique social media platform.

Speaking of *bad apples*… The unfortunate reality of financial statements is that clever accounting can make bad results look good and deceive investors – *without* breaking any laws. For example, Wall Street has an obsession with earnings, but that number can be very different from actual cash that is exchanged during normal business operations and ends up in the company's pocket. We have two choices: (1) become accounting wizards and try to catch any funny business in the financial statements, or (2) accept that there are too many complicated ways for us to be tricked if a good (well, *bad*) accountant wanted to trick us. Even if we could understand the financials better than the accountant, we would have to search harder and harder across every company we are interested in. The pixelated truth suggests simple observations of meaningful numbers, like a high and steady ROIC, to reduce the probability of sneakiness – rather than searching hard to find sneakiness and becoming a victim of information overload.

Ignore The Price – Sell When Good Companies Go Bad

By monitoring the ROIC we can quickly judge the quality of a business based on actual numbers rather than nice-sounding stories, second-hand anecdotes, meaningless predictions about the future, or (worst of all) by whatever the price did yesterday! Reversing our definition, "***bad companies***" have gone *out of wacc*: they have a low ROIC that is near or below WACC – or a negative ROIC meaning unprofitable.[6] You may object: *but but but what about* so-and-so unprofitable company that is taking off like a rocket? Explosive user growth, going viral around the world. *Surely* they can blast through profitability any day now – sure, *maybe*… But that would require lots of analysis to develop an opinion on what they *could* do rather than looking at a cold hard number for what they *are* doing. Once we start coming up with exceptions to

our definition, then we go down a rabbit hole which runs counter to the central point of our *pixelated truth* philosophy: avoid the noise. So yes, there are exceptions of "good companies" without high ROIC, but our goal is to efficiently filter rotten apples, even if that means tossing out a few unripened opportunities in the process.

Leave Unprofitable Companies For The Bag Holders

The expression goes "don't get caught holding the bag," meaning it is fine to hold the bag when the times are good… Just don't be the sucker getting stuck with it after things go bad. In the stock market, that is the moment when all the buyers vanish – those same buyers that convinced you the *price* you paid was the same as the *value* you got. This is especially problematic for early-stage growth companies – those baby businesses that can't even pronounce the word *profit* – because they are laser-focused on growing their top line that the bottom line is all but forgotten. Investors buy into a compelling narrative and end up overpaying. But the growth party eventually stops, the analyst herd changes its expectations, the disappointed buyers disappear, and the losses become brutal.

In fact, ROIC is more than profitability since the ratio gives us a rate of long-term value creation. As a consequence, a negative ROIC would mean the *more* the company grows, the *more* cash it burns – it is *destroying* value![7] We will learn about ROIC trends over time in a later chapter, but in the spirit of quickly removing rotten apples: if a company is not a clear value creator, then we can simply throw it in the (potential) value destroyer pile. *Skip over negative ROIC companies* and you won't get caught holding an unprofitable bag since you were never holding it to begin with!

Know Why You Got In... To Know When To Get Out

The main purpose of the filter is to lower the probability of a large

drawdown by *quickly and efficiently* removing the easy-to-identify "bad" companies (rotten apples) – even at the expense of throwing out potentially hard-to-identify "good" companies (unripened apples). This is the key point of the book, since large losses hurt our long-term growth more than large wins help. Operationally, this strategy of picking winners by avoiding losers can be used as a first pass to sift through the giant universe of stocks in search of a new opportunity, but just as important is using it to *clean up the portfolio*.

Buying a stock with the intention to hold forever is… silly. Companies are *dynamic*, constantly evolving in a state of flux with employees joining and leaving, cash flowing in and out, new product ideas hitting the market and old products taken off the shelf. So buy & hold *as long as* the good company remains a good company, but then ***sell when ripe turns rotten***. The great investor Peter Lynch makes it sound so easy: come up with a "story" about the business for why you should buy the stock, and then sell the stock if the "story" has changed or gets factored into the price... Okay, but what does that *really mean*? It clearly worked for Lynch, who returned a phenomenal 29% CAGR over 13 years, but I honestly find following his advice to be as helpful as "buy low, sell high." Even the best analysts out there, who study these companies for a living, can completely disagree on the "story" and whether it has been sufficiently priced in!

If we don't have a clear reason for why we *got in*, we will never know why or when to *get out!* That's when we start checking the price, get overloaded, get overwhelmed, and overtrade. With our simple definition we can quickly & quantitatively say when a "good" company has gone "bad" without overcomplicating: if a high ROIC company has a drop in ROIC below your threshold (and especially below WACC), then exit. There are an infinite number of subtleties, and maybe ROIC will bounce back later – in which case, great! We will be waiting for the business to prove itself according

to our definition, but in the meantime will have put that money to better use in companies that are continuing to demonstrate high quality.

Keep in mind that following ROIC is playing the *long game*: it can take time for the invested capital seeds to start sprouting value – and then to see that value factored into the stock price. The good news is that high ROIC companies tend to have a sustained competitive edge that keeps ROIC high & stable over time.[8] However, if they rest on their laurels and coast as ROIC trends downwards, these businesses risk becoming rotten apples – long-term value-destroyers – even if the stock price remains buoyed by narratives in the near-term. We should think of ROIC as *feedback* on how the business, as a machine for turning money into more money, is operating. If we get meaningful and measurable evidence that the machine's long-term money printer is running low on ink (or getting jammed), then as investors we should respond to that feedback.

Exiting when good companies go bad is the hardest part because we are already invested financially and, inevitably as non-blindfolded chimps/humans, emotionally, in the stock. It becomes easy to weave our own narratives about how the price and technical indicators are looking bullish, how the new management team is really going to shake things up, and how the company will 10X now that their competing widget manufacturer was hit with exorbitant tariffs exporting from Widgetkistan… But at the end of the day the stock doesn't care about your narrative – or anyone else's narrative, for that matter. Maintaining sell discipline is critical for any strategy, and we should avoid FOMO – the "Fear Of Missing Out" – to any extent possible. It is a big market and there will *always* be another opportunity right around the corner.

Trade 4 Times A Year (If Needed) – Otherwise Let Winners Run!

To avoid information overload following the 80/20 Rule, we have

gone on an *information diet* that cuts out all of the highly-processed junk food – the news, noise, and narratives – and replaces it with simple, healthy fruits (ROIC) and mixed veggies (gross margin, revenue growth). Taking the next step, we can go on an *information fast* by not checking the price every day. In fact, we only really need to check in every quarter, 4 times a year, when the earnings numbers are released to update our key parameter.[9] By checking in every quarter, we are consuming information on a timescale that is more appropriate for measurable and meaningful developments of company fundamentals. Granted, a random and significant "black swan" event can occur on any day of the week and materially affect any business, but these are by definition unpredictable to us. If we are not trading based on the price, then there is no reason to allow the market groupthink to distract us in between the actual financial numbers that we are using to make buy and sell decisions.

An important consequence of the CAGR math is that we should *never interrupt compounding unnecessarily*, for example by (unnecessarily) realizing gains and paying taxes. The longer our strategy operates, the more unrealized gains, the better our long-term CAGR. The short-term (less than one year) capital gains tax rate can be as high as 37%, but the lower long-term (over one year) capital gains tax rate only goes up to 20%. So more appropriately, we want to check in 4 times a year and trade *if necessary*. If all of our apples are still ripe after the quarterly check-in, then we follow the wisdom of the traders: cut your losses and *let your winners run!*

Create Your Own Filter In 5 Minutes

Time to put what we learned into practice – let's reach into the barrel and start tossing some apples! Our philosophy following the 80/20 Rule says it should be a quick & painless process to remove the rotten apples, and I'll show you how easy it is to set up a filter

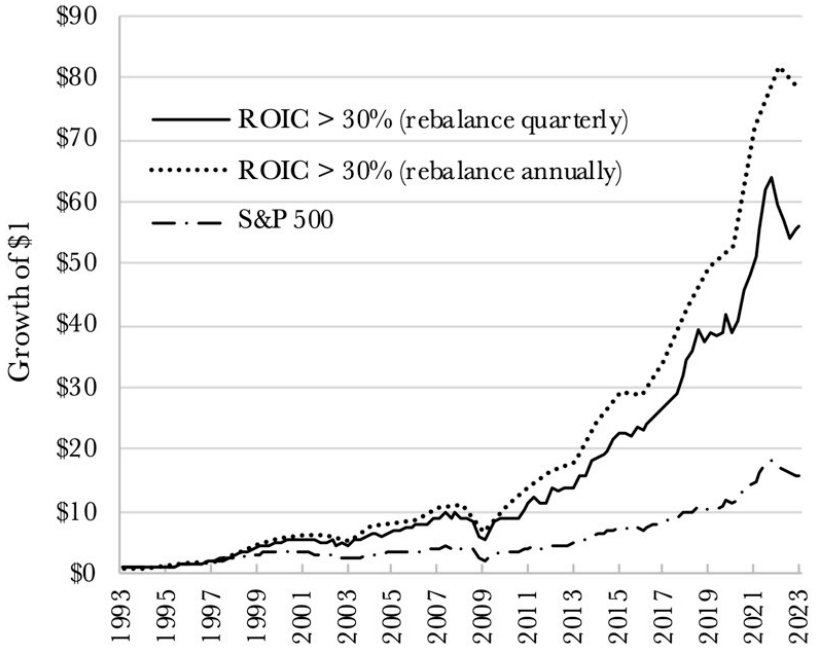
based on what we learned. I'll even show you that just filtering out bad companies makes for a good strategy *without* checking the price. This means that simply betting on long-term value creators is already enough to beat the market! However, keep in mind that valuation should be considered for a complete strategy; knowing how to get in at a great price is a book on its own (see "*Stop Buying The Hype*"), but it can supercharge the strategy. Nonetheless, the purpose here is to demonstrate the *pixelated truth*: a super simple filter, set up in 5 minutes, does nearly all of the work for us. We get *more* valuable information in *less* time without overloading on inconsequential details or meaningless predictions about the distant future.

All of the financial data we need is readily available from plenty of different sources. A quick online search for a "stock screener" or "equity screener" will point you to dozens of options. For example, I made an account on TIKR.com for free, navigated to the "Global Screener" on the sidebar, added a filter for "Last Market Cap" above $200 billion – the so-called *mega-caps* category. Then added ROIC above 30% for the last 12 months ("LTM"), clicked the "fetch screen" button and the list was spit out in a couple of seconds: 11 companies including AAPL, MSFT, V, MA, HD, LLY. How about only *large-cap* companies in the $10 billion to $200 billion range with ROIC above 25%? A list of 201 stocks with names like CSCO, UPS, TXN, ADBE, PM, QCOM, COP, LMT, SBUX. This list covers a range of sectors and shows that quality companies are everywhere: technology hardware, transportation, semiconductors, software, tobacco, oil, defense, coffee. I am not recommending you buy and hold these names, but just want to show how the hardest part of setting up a filter is creating an account with your email. Since TIKR limits how many stocks you can see without paying, let's see what we can find for free. Navigate to FinViz.com, click "Screener," then "Fundamentals," then filter by +25% "Return On Investment" and voila! Yahoo Finance (finance.yahoo.com/screener) has a similar tool filtering by "Return on Total Capital

%".

These tools can filter other quantities of interest like gross margin or revenue (sales) growth to do even better, but hopefully the bottom line is clear: the information we want is already out there – it is not held inside a guarded vault, it doesn't need to be cryptographically decoded, and it doesn't require a complicated artificial intelligence to analyze weather patterns. The challenge is reducing the noise to a simple, meaningful, and measurable number and otherwise remaining agnostic about what could happen tomorrow. I've given you three options to check out, and there are plenty of others available that span a wide range of prices. I used to rely on the Bloomberg Terminal, but instead of paying $2,300/month for all of the noise I now use my own application modeled after my old Bloomberg setup – but simplified with only the information I need.[10]

Example: To illustrate the power of simplicity, let's backtest how our strategy would have performed. The S&P 500 returned 9.7% CAGR over the past 30 years, so let's use that as our comparison. For a nice buffer above the WACC, let's take a relatively aggressive ROIC $>$ 30%. Then we filter S&P 500 companies with ROIC $>$ 30% – and that's it! For simplicity of managing the portfolio, I'll show results for rebalancing quarterly and annually.[11] This just means once every quarter (or year) we put an equal percentage allocation to all of the companies that pass the filter. If during one quarter, 44 companies pass the filter, then put 2.3% in each. If during another quarter only 5 companies pass the filter, then put 20% in each. In fact, 5 to 44 companies is the range of portfolio size for this particular backtest with quarterly rebalancing. Most of the companies are the same from quarter to quarter, and only a handful will fall off the list while some new ones are added. This is because ROIC tends to be relatively steady for these large market cap & high-ROIC companies over the quarter-to-quarter and year-to-year timescale.



Backtest: Simple S&P 500 Filter

The growth of $1 over 30 years is shown (see image) using our filter that rebalances quarterly (solid line) and annually (dotted line), along with the S&P 500 index (dotted-dashed line). The results aren't half bad: for this obnoxiously simple strategy, quarterly rebalancing gives 14.4% CAGR and annual rebalancing gives ***15.6% CAGR!*** And we *beat the market* ending up with 3-5X the value compared to the S&P 500 index.

The returns are similar if we lowered ROIC to 25%, though the portfolio size would increase to between 10 and 68 companies over the 30-year backtest. We can easily improve this CAGR by a couple more percentage points by adding another filter,[12] but as we will see in the chapter "How To Evaluate A Stock In 60 Seconds," the final list is already short enough that we can apply the next step in our strategy to greatly improve our returns.

To appreciate the simplicity of this filter, let's compare it with the

OG of value investing (and mentor to Warren Buffett), the great Benjamin Graham. His filter for the defensive investor:

1. Over $100 million in annual sales (around $2 billion adjusted for today) and over $50 million in assets for utilities
2. Current assets should be at least twice current liabilities, and long-term debt should not exceed net current assets. But for utilities, total debt should not exceed twice the book value. And financial companies should be in the top 20% of their respective industries for tangible common equity ratio and solvency ratio
3. Positive earnings in the past 10 years
4. Dividend payments must be uninterrupted for the past 20 years
5. Three-year average earnings must increase by at least 33% compared to the three-year average earnings 10 years ago
6. Current price should be below 15 times the three-year average earnings
7. Current price to tangible book value should be below 1.5, but can be higher for stocks with low price-to-earnings ratio if the price-to-earnings and price-to-book, when multiplied together, are below 22.5

Now, don't get me wrong; each of these rules is totally reasonable on its own, and they are backed by the wisdom and experience of a legendary investor. Yet while there is a strong argument for why the companies satisfying all of these criteria are “good,” it is easy to miss the forest for the trees and over-filter. This proved to be powerful in narrowing down to great companies in Graham’s day, but applying it today becomes extremely restrictive.[13] For example, the filter would miss companies that reinvested their earnings without returning a dividend to shareholders. So then we might want to tweak these parameters slightly… But which ones? By how

much? And how much time and effort would it take you to perform this screen? The ROIC filter is much quicker to the draw, with one number doing most of the work for us, and its simplicity gives it staying power. We will see over the next two chapters how to significantly increase our returns while still following the philosophy of the 80/20 Rule. So even if this simplest of filters is not the final answer, it does provide an example of the *pixelated truth*: we can beat the market without a complicated and time-consuming strategy.

Key Takeaways From This Chapter:

1. The worst thing as investors is taking a bite of a rotten apple: a bad company that leads to a massive drawdown (CAGR)
2. ROIC is one of the best metrics to judge the long-term quality of a business; we define a "good company" as having a high ROIC buffer above WACC
3. Create a simple & fast filter that removes *easily-identifiable* rotten apples (bad companies), even if that means throwing out some potentially unripened apples in the process
4. Sell when ripe goes rotten: ROIC (and IC) trend downwards, especially below WACC. Otherwise let your winners run!

4

BEAT BUFFETT: HOW TO OUTPERFORM THE GIANTS BY THINKING SMALL

This chapter title makes a *very* bold claim: outperforming the GOAT – the *greatest of all time* – the Oracle of Omaha, Warren Buffet using a super simple strategy. But I hope to prove it to you by demonstrating its success over the past 30 years. I promise that it is a serious strategy – not just "buy bitcoin in 2010" – and is only a *small* extension of what we have been doing so far.

The S&P 500 returned 9.7% CAGR over the past 30 years.[1] Going back to 1871, US stocks returned 9% CAGR which suggests the 30-year time period for our test does a decent enough job covering multiple waves of the business cycle – wars, recessions, tech and housing bubbles, Fed money printing, and so on. As of this writing in 2023, Buffett returned 12.6% CAGR over the past 30 years.[2] Alright, but let's give credit where credit is due! He is managing a $300 billion portfolio, and everybody knows it gets harder to achieve big returns the more money you manage – yet that is *exactly* the point of this chapter. So to be fair, our challenge is to beat the 20% CAGR based on Buffett's annualized return at Berkshire Hathaway since 1965. Read on to find how an embarrassingly simple strategy – though totally consistent with our investment philosophy of reducing effort by 99% – can beat the GOAT's CAGR.

The point here is not to take cheap shots at one of the wisest investors of all time, but rather to present a contrarian strategy that can still produce great long-term results while running counter

to the teachings and practices of the best in the business. Buffett likes to say that we would all be better investors with a punch card and only 20 chances to pick stocks because it forces us to become experts before making a decision – sage advice. He says that he waits for a "wonderful business" that he understands; here we will see how to achieve great results without understanding *anything* about the company in great detail... However, like Buffett we still think in terms of buying a *business* – not a *stock price*. The difference is that we accept the pixelated truth to leverage the 80/20 Rule. By looking at the business as a value-creating machine, we filter out the noise and reduce our work by 99% *without* becoming experts on the stocks that we pick. It sounds contrarian to the point of being reckless, but we will learn how this simple approach has a well-documented edge (even when we can't "know it all") yet gives great returns while saving us time!

Small Cap Premium: The Blindfolded Monkey's Edge

Remember our primate friend, the blindfolded dart-throwing chimp, who beat the expert investors in a stock picking match? I've said it before and I say it again: *game recognizes game* – so what is the monkey's secret? It turns out it's the same secret as all of the other non-human portfolio managers. A study found that portfolios of 30 stocks, randomly-selected each year from 1,000 stocks, beat the market cap-weighted index of the 1,000 companies *98 out of 100 times* from 1964 to 2010.[3] The reason for this is the so-called "***small cap premium***" and the story goes like this: small market capitalization companies have higher risk (less analyst coverage, lower profitability, less liquidity, a weaker competitive moat, more uncertainty, etc.) and therefore the "efficient market" – or the imaginary frictionless surface from the textbook – must provide a higher reward for the higher risk. Then the market cap-weighted indices – by design – have a larger fraction dedicated to larger companies that lack this premium. The effect is pretty clear from the numbers: the market cap-weighted index returned 9.7% CAGR

over the time period, however the 30 largest companies – accounting for 40% of the index weight – returned 8.6% CAGR.[4] The remaining 970 companies – accounting for the other 60% of the index weight – returned 10.5% CAGR. The monkey's portfolio has equal weights in the random stocks and is therefore not as heavily influenced by the size effect. In the long-run, the monkey wins!

As it turns out, the small cap premium is well known in the efficient market academic circles,[5] and the effect is strongest when low-profitability stocks are filtered out. That is great for us since our core metric is ROIC, and we don't want to get caught holding an unprofitable bag anyway. A lesson I've learned from studying theoretical physics is that you must know the limitations of your model, a figment of your imagination, to describe (with sufficient accuracy) something observed in nature; but you should never go so far as to tell nature – or the market – how it should behave. So whether the explanation for the small cap premium is a useful approximation, or stock analysts are just not even looking, or small companies are more "growthier" in a finite resource world, we really don't care... At the end of the day, *CAGR is King*: if a strategy has better returns over the long-run, then by our definition it has lower risk – completely independent of volatility, analyst coverage, and the theoretical risk-reward of an efficient market. And the longer the run, the more opportunities for the strategy to blow up. So while the monkey shows us how information overload can hurt us on the yearly timescale, these long-term studies show an actual edge by simply favoring *smaller companies*.

Steal A Page From The Venture Capitalist's Playbook

Thinking through the small cap premium observation, we are led to conclude that the *extreme limit* of the dart-throwing monkey is none other than the venture capitalist. VCs bet on early-stage companies that have all of the risks of small caps – and *more*. They

will bet on companies that are pre-profit, pre-revenue, pre-customer, sometimes even pre-idea… So according to the efficient market hypothesis, VCs are taking on a *huge risk* to reap a *huge reward*. However, the truth is a bit more nuanced. A friend of mine who was a VC at a big-name Silicon Valley venture firm gave me plenty of advice about running businesses and betting on startup teams over the years. One day he made a comment in passing about VC risk that has always stuck in my mind. He said that while VCs love to advertise themselves as risky bettors at the frontier, the Wild West of innovation and world-changing technology, the truth is that they are experts at managing (and reducing) risk. He said behind the glamor, it is not nearly as "risky" as we think.

Venture capitalists know that the large majority of their investments will fail and never return any cash! The strategy is not to pick companies with a high probability of decent success, but to find the lottery ticket: the one-in-a-hundred company that will scale to massive size in a massive market, whose gains will overcompensate the losses of the other 99%.[6] Sometimes you get extra lucky with more than one winning company and get to take a victory lap! It may sound *risky* being wrong 99% of the time, but the relevant question is: what is the probability that *all* investments fail – the probability of *ruin*? The good VC firms manage risk by diversifying, just like any large mutual fund would do, but *not* based on modern portfolio theory! After all, there isn't even a publicly-traded stock price, so no correlations and volatility to think about.

The Power Law's Explosive Payout

> "*Big companies have small moves, small companies have big moves.*"
>
> PETER LYNCH

VCs (at least, the *good* ones – there is a wide range of performance) understand that the future cannot be predicted at all, especially when it comes to new ideas and disruptive technologies. So instead of playing stock analyst and becoming an expert on the details of a business that *doesn't even exist* yet and projecting earnings way into the future for a discounted cash flow model, VCs are forced to use a different approach: look at things like the adaptability of the team and the total market size if successful – everything else is nearly impossible to predict in the beginning! And unlike large mutual funds, the successful company that VCs bet on will have an *explosive payout* – that means 10X, 100X, 1000X, and so on.

Example: If one company goes to zero in a portfolio of 20 companies it would be a -5% loss for the portfolio. But that same company exploding to 10X in size would be a +45% gain for the whole portfolio. And a 40X increase in size, going from $50 million market cap to to $2 billion – would be a +195% gain! Diversification reduces our *downside*, and we keep removing rotten apples to pick good companies until we get lucky with one of these positive *upside* wins. This is as close to the VC's playbook as we can get in the public markets – you would be hard-pressed to find an S&P 500 company that can 40X in size as fast as a small cap!

The payout for small early-stage companies follows a *power law distribution*: plenty of failures, but a long tail corresponding to a few massive wins.[7] Compare this with the *normal distribution* of a familiar "bell curve" that is more representative of later-stage companies.[8] That is not to say there are never big wins for big caps: Moderna's market cap increased from below $10 billion before the COVID-19 pandemic to nearly $200 billion in less than two years! The point is that while these cases can occur, they are more common for small companies with room to grow. And when they do occur, the sky's the limit – no one knows just how big they can grow, so VCs benefit from serendipity.

Rather than getting jealous about venture capital's power law

payout, let's ask ourselves if the smallest corners of the stock market allow us to *steal a page from the VC's playbook*. If you follow Buffett, reading all of the 10-Ks and Qs, then your goal is to become an expert on the companies in your portfolio and know everything about their business model. Easier for the big names, but the small scale is a different world: companies could 10X in a *single quarter* or could go bankrupt without a trace of news. Instead, we can follow our pixelated truth to get the best of *both worlds*:

- *Unlike early-stage VCs*: we use a simple filter to quickly cut through the noise and remove low-quality apples using financial data from profitable companies
- *Unlike large mutual funds*: we capture the high-growth power law opportunities from small caps and then diversify to increase the reward by reducing the risk

A dart-throwing VC can't screen for ROIC, and a large mutual fund portfolio manager can't bet on tiny companies (see below). So let the analysts spend all of their time deep diving through various sectors looking for the next 2-bagger. Let the VCs spend all of their time meeting with founders while not knowing how far away profitability is. We let *size* do the work for us, significantly de-risk by filtering for long-term value creation, and remain agnostic to just about everything else – all while reducing our time & effort by 99%.

Diversification That Reduces Risk To Increase Returns

Index funds preach the philosophy of broad market diversification: markets are efficient and no one is smart enough to beat the market long term. There is nothing wrong with putting in *0% effort*, accepting the future is unknown, and riding the business cycle up & down with everyone else according to the modern portfolio theory narrative... but that's not our goal! Instead, we are

leveraging the 80/20 Rule by putting in *1% effort*, still accepting the future is unknown, and picking good companies to beat the crowd. However, even after cutting down the work needed to find companies, we must still acknowledge our ignorance, especially in the small cap world, with diversification.

What about Buffett putting in *100% effort*? Buffett's portfolio looks extremely *concentrated* by comparison: over 80% of his publicly-traded portfolio (as of this 2023 writing) is held in 6 companies! And 40% is in a single company (Apple). He feels that if you know how to analyze and value businesses, then it's crazy to own 30, 40, 50 stocks and suggests just buying "3 wonderful businesses."

> "*Diversification, as practiced generally, makes very little sense for anyone that knows what they are doing.*"
>
> WARREN BUFFETT

So why are we reverting back to diversification – the butt of the joke – even knowing that modern portfolio theory's (volatility-based) risk-reward tradeoff should be thrown out? We don't have to get into the mathematical weeds to realize that diversification is not a black or white, yes or no, good or bad choice; there are ***varying degrees of diversification***. At one extreme is the YOLO – "*you only live once*" – gamble on a single stock.[9] At the other extreme is the total market index – maximum *di-worsification*. There is an happy medium somewhere in between[10] that gives the highest average CAGR benefitting the most people – meaning least amount of blow ups, the *real* risk we want to avoid – rather than everybody getting the same market result *or* a handful of YOLOs getting lucky with everyone else going broke.

The VC's playbook clearly shows the benefits of good diversification *without* crossing over into di-worsification. While

typical VC funds may have 20 to 40 companies in their portfolio, the results show that this is not diversified enough.[11] For the extreme power law payouts in venture capital, funds should be looking at 50, 100, 200 companies, if not more! A study simulated portfolios of size 15 and size 500 (which is huge) and showed that even though diversification shrinks the range of returns closer together, it actually moved the average[12] return *up* from 10% to 13.5% CAGR – that's *diversification done right*. So what works for the small cap strategy in between the extremes of 6 for Buffett and 500 for VCs? Well, I'll admit that I don't have an absolute answer – this is an age-old question, and the recommendations vary depending on who you ask (and when you ask them). However, if Buffett says 30 is too many and the literature says 30 is too few,[13] then that is a number I like to keep in the back of my mind for a small cap strategy.[14]

Also keep in mind that we are not diversifying for numbers sake. We start with our rotten apple filter, for example using ROIC and Gross Margin, and then diversify over these "good" companies motivated by the VC's playbook for small businesses with big returns. So the punchline is that ***small cap diversification (of good companies) maximizes returns by reducing risk***. This allows us to prudently move into lower market caps without having to know every single pixel of every single company.

There's Plenty Of Room At The Bottom

Big Names Get All The Attention

While working in asset management, I remember attending a meeting on the future of artificial intelligence. All of the portfolio managers and analysts gathered together to try and understand the potential impact of AI technology on our investments (you can only guess how I felt, knowing the pixelated truth and predictions about the future…). With every question asked, the answers kept

coming back to Microsoft and Google, the two tech giants. And of course it did! We are naturally programmed to get stuck thinking in terms of a world where the biggest players who dominate the market are always making the rules. We talked about the impact of AI on the giants in healthcare giants, the giants in energy, the giants in consumer durables, and so on... Yet there are so many small companies around the world that capture the benefits of new technologies and will never be mentioned in these meetings until 5 or 10 years when those small companies are the new giants!

I've sat in plenty of meetings listening to analysts go into great detail about the biggest companies in the world: how their international supply chains are reorganizing, how much debt is taken on for their latest acquisition, the number of share buybacks – right down to the tone of the CFO's voice on the latest earnings call! These analysts would be out of a job if they couldn't recall the last decimal place digit of each line on the cash flow statement. They are paid to be the expert on the companies in their domain and prognosticate on the future to help portfolio managers feel they are making informed decisions. It's amazing to see analysts putting their encyclopedia brains to work, but the truth is they have a finite pixel capacity for useless facts just like the rest of us. So they prioritize: a tech analyst would be seen as completely oblivious if they didn't know the latest on Microsoft's cloud business, just as an energy analyst would come across as totally uninformed for not knowing about Exxon Mobil's latest oil exploration prospects. As a consequence, analyst eyeballs naturally focus on the largest companies – spending 80% of their time researching the largest 20% of companies (and by extension, 50% of their time researching the largest 1% of companies).

Consider the top holdings at some of the biggest large-cap growth funds:

Vanguard Growth Index Investor

AAPL, MSFT, AMZN, GOOGL, TSLA, META, NVDA, V

Fidelity Contrafund

BRK, META, AMZN, MSFT, UNH, AAPL, GOOGL

T. Rowe Price Blue Chip Growth

MSFT, AMZN, GOOGL, AAPL, META, TSLA, NVDA

MFS Growth B

MSFT, AMZN, GOOGL, AAPL, MA, ADBE, V, META, PYPL, NVDA

JPMorgan Large Cap Growth 1

AAPL, MSFT, GOOGL, ABBV, DE, AMD, PYPL, NVDA

CREF Growth R1

MSFT, AMZN, AAPL, GOOGL, TSLA, PYPL, V, MA, COST

Harbor Capital Appreciation Instl

TSLA, AMZN, AAPL, MSFT, NVDA, SHOP, META, GOOGL, MA

Fidelity Magellan

AAPL, MSFT, AMZN, META, GOOGL, UNH, NVDA, SPGI, V

Notice any similarities? Granted, these big funds are in the same growth category and have size constraints… but still, c'mon guys! *Really?* Money managers from different companies take our money, go buy the giant names AAPL, AMZN, GOOGL, META, MSFT, NVDA, TSLA, V… slightly tweak the portfolio balance and take a fee – but that's a separate discussion. The point is that big money is investing in the same big names, which means fewer eyeballs on the smaller names.

Just as unhelpful as spending 50% of time studying the largest 1% of companies is telling me in *hindsight* that large company XYZ is great – I want to get in XYZ *before* it's cool! Why tell me that Nike

is a great company now when the fastest growth phase is decades behind us?

Example: Nike (NKE) saw its fastest increase in stock price when it was a $250 million business. Even at a $3.5 billion market cap in 1991, Nike grew at 32% CAGR over the next 6 years with ROIC never dipping below 15%. UnitedHealth Group (UNH) started its explosive run below $100 million. Even waiting until a $1 billion market cap in 1991, the company still grew at 48% CAGR over the next 4 years as ROIC decreased from 24% to 15%. Cisco (CSCO) started its meteoric rise at $300 million market cap and peaked at over $500 billion at the height of the tech bubble. Getting in at a $7 billion market cap in 1993 would have yielded 70% CAGR (wow) over a 7-year tear while ROIC coasted from 46% down to 15%.[15] Today these are massive companies with armies of analysts posting price targets, but I'd rather ride the roller coaster during the fun part – not when the company is testing its limits of growth.

Why Small (Cap) Is Beautiful

It is well-documented that the lifespan of a company on the S&P 500 index has been going down. In the 1970s the average time was hovering over 30 years, but is now below 20 years and dropping.[16] The giants are eventually *bought-out, merged, or go bust*. While some of the old names survive (Procter & Gamble, Coca-Cola, GE), the new names (Google, Nvidia, Tesla) are dominating in size and noise. No one knows what the future holds for them – the list may be different even by the time you read this book. Whatever the reason for this observation, we all know there is a natural process of growth – from a human, to a city, to a civilization, and beyond. We grow as babies, but then plateau as adults and switch from growth mode to maintenance mode (and reproduction mode) until we too are *bought-out, merged, or go bust*. The stock market is made up of businesses that are, as a whole, in a state of constant flux: there are always businesses that are growing, maintaining, and

shrinking just as there are always bubbles that are inflating, deflating, and popping. Our strategy benefits from *room to grow* so that it is always an easy decision for high ROIC companies to reinvest in themselves and benefit from their money-making machine.

Market capitalization is broken down into a handful of classifications, with the current sizes grouped as:

- Mega cap = $200 billion and above
- Large cap = $10 billion to $200 billion
- Mid cap = $2 billion to $10 billion
- Small cap = $300 million to $2 billion
- Micro cap = $50 million to $300 million
- Nano cap = $50 million and below

There is no trophy when a company crosses from one class into another, but this breakdown does give a sense of the different scales for public companies. And as you shrink down to a smaller scale, our advantages get stronger. To summarize a few:

1. **More Stocks, Fewer Eyeballs**: There are simply *more* companies at a smaller scale, and it is impossible to do a deep dive into the business model for all of them... And information overload is precisely where a filter is the most powerful! Fewer eyeballs means there will be even more inefficiencies in the market, which means better deals for us.
2. **Plenty Of Room To Grow**: For a magician pulling a rabbit out of a hat, the trick gets harder as the rabbit gets bigger. Similarly large companies just have more difficulty sustaining high levels of growth. Companies must create profit at a meaningful scale to move the needle relative to their size – no one would be impressed by pulling a tiny rabbit out of a giant hat. Smaller companies can dominate

in their niche market, but have lots of opportunities to expand (though also more competition). By filtering out large cap stocks, we are more likely to find businesses that have not saturated their market, or can pick low-hanging fruit in new markets. This gives room to fully leverage the high ROIC before revenue starts its exponential "*rollover*" (see next chapter on revenue trends).

3. **Smaller is More Adaptable**: Larger companies have to deal with larger problems, and they experience strong correlations that are disconnected from company fundamentals. Of course, small companies have to deal with the Fed's interest rates and inflation just like everyone else, but if you are a nimble small cap company it is easier to keep your head down to focus on building and improving your systems. Large companies have certain economies of scale and advantages that come with being the biggest fish in the pond. However, small companies in aggregate tend to be more resilient, robust, and "antifragile" in response to unexpected events.
4. **Big Money Can't Play Small Cap**: A $100 billion dollar fund cannot put a meaningful position on a small company. Big money can tweak their fractions for the limited selection of large cap companies, but as individual investors we have much more flexibility. Take advantage of being a *small fish* by swimming in a *small pond!*

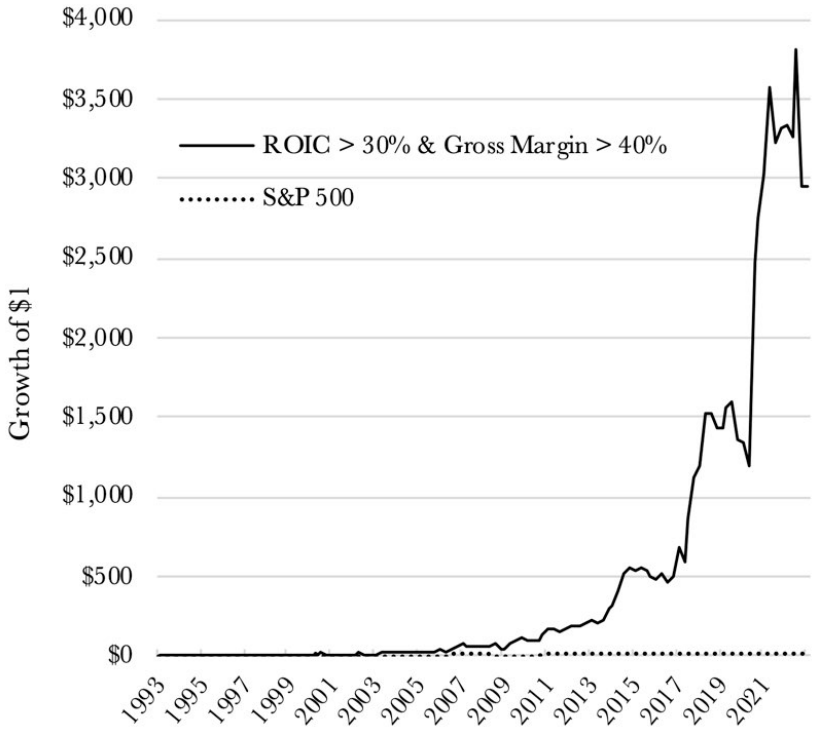
So the combination of *more information* (overload benefits our filters), *more inefficiencies* (better opportunities), and *more growth* (giving winners room to run) makes the small cap universe an exciting place to play. There are just so many unknowns with so much ground to cover that we must accept the pixelated truth from the start: we can't know it all, we can't make predictions, but we can quickly filter noise.

Backtesting The Small Company Filter

Now it's time to see what the big deal is about small caps! For the maximum effect of our simple *Buffett Beater* filter, let's shrink down directly to the nanoscale and pick companies below $50 million market capitalization – these are not the household names you will read about in the news when the CEO tweets. Let's also pick companies above $10 million market cap, since below this limit we really go into an "information shortage" world rather than an "information overload" world. For this example we restrict to US companies for more reliable numbers and because these stocks can be bought with the big-name brokerages. We use an aggressive ROIC > 30% and add on Gross Margin > 40%, which is a good value for a strong competitive moat. To summarize our filter:

- US companies
- $10 million < Market Cap < $50 million
- ROIC > 30%
- Gross Margin > 40%

Super simple… but how does it do? Over a 30-year backtest we have a ***30.5% CAGR*** – that's *ten percentage points* above our Buffett benchmark! So starting 30 years ago, we would turn $1 into nearly $3,000 – that's over *180X* what the S&P 500 index returned! The worst quarter had -35% return, but a few quarters had over 100% gains! While the volatility is high, it is volatility to the upside – the *opposite* of the risk-reward tradeoff. This filter choice does not create a particularly diversified portfolio (holding on average only 7 stocks), but nonetheless it is an easy example that shows the explosive moves at the nanoscale.

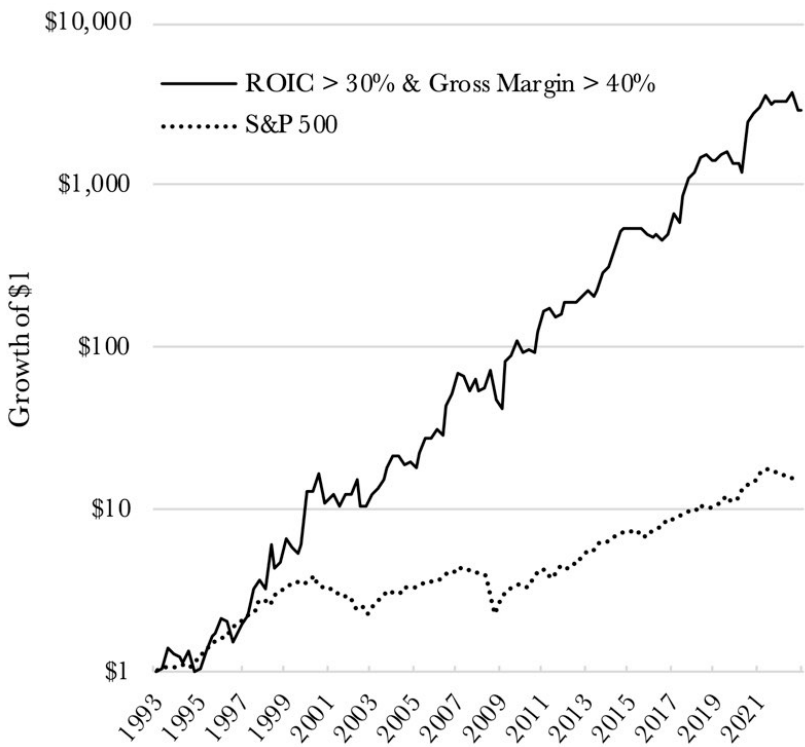


Backtest: US Nano Cap Filter

The backtest included a quarterly rebalancing (equally weighting each company), but this tends to clip the wings of our winners just as they start taking flight. Rebalancing prevents portfolio concentration over time to stay diversified, but the explosive upside wins are what benefit us the most. This is no different than the VC playbook: when 9/10 companies fail, you are going to hang on to that winner! Similarly by setting an upper cutoff at a $50 million market cap, we are selling the companies that actually grew from Nano to Micro scale. So alternatively we can *let our winners run* and/or trim positions (rather than sell completely) to improve the strategy.[17] This allows us to hold winners for a longer time and to a larger size while using the Nano cap filter to *find new opportunities* at the smallest scale.

Log Your Gains: Plot on Log-Scale To See Compounding

We should naturally be skeptical of any backtest to make sure the results are not cherry-picked (whether accidental or intentional). While I have run these backtests for many different combinations and found similar results, you may think I "got lucky" with a couple of big wins in the last few years that make the final result look good. But don't let the exponential math of compounding deceive your eyes! As we will discuss in the next chapter when looking at trends, the big jumps seen in the last few years of the backtest may be *lucky* wins – that is what we are hoping for, after all – but when plotted correctly, we see that we are *lucky* throughout the entire 30-year backtest. The bias we see for recent years is an illusion of the plotting scale since our strategy is compounding with time.



If we plot the same exact data again (see image) but change the vertical axis to a logarithmic scale (log scale) that compresses big numbers, we can see the compounding in all of its glory. A straight line on a log plot means *exponential* growth. Besides the unavoidable ups & downs of long-term investing, this strategy trends along a *straight line for 30 years*! That's *120 different trading opportunities* through recessions, wars, bull markets, bear markets, asset bubbles inflating & popping. Maintaining a consistent rate of compounding through all of this shows the result not a one-time lottery ticket win, but a real strategy.

Applying our rotten apple filter (high ROIC for long-term value creation, plus a solid gross margin for a strong moat) at the small scale gives a simple strategy to beat the market – and the giants – without checking the price! So *what's the catch*? Well, it's the same reason that the big money can't use this strategy: a $100K portfolio would grow to $300 million after 30 years – but that is bigger than the size of the companies we are investing in! The liquidity issues (see below) become more problematic the larger the fund – but that leaves the opportunity on the table for individual investors with small accounts. As small fish, we can choose *not* to swim in the big pond – so let's use the small pond to our advantage. Sing it with me: "*It's a small (cap) world after all!"*

No Free Lunch: Consider Tradeoffs Before Playing Small Cap

Stealing a page from the VC's playbook, we saw how (reasonable) diversification over explosive power law payouts increases reward by decreasing risk. The tradeoff comes from the costs of buying and selling lots of ***highly volatile*** and ***highly illiquid*** stocks. If there are fewer shares floating around, it doesn't take a lot of buying pressure to send the price on a rollercoaster – and traders looking for tickets to the ride can more easily manipulate the price. The

illiquidity tradeoff is associated with a larger (relative) bid-ask spread when placing orders, as well as the low volumes of shares being traded. This hurts during both buying and selling, and can make for quite a painful experience trying to get out when there are no buyers. Look at the average daily volume of shares that are traded to get a sense of how the order will be filled.[18] And while we may love to let the winners run, it is important to respect your exit strategy for any stock decision – whether that is a simple definition (like ripe going rotten when ROIC drops below WACC) or something more complicated. Small companies make big moves in price and fundamentals, so that could mean getting in and out after a single quarter – more trading, a higher capital gains tax, and possibly a *big loss* from transactions if you are not careful. As would be expected, the problems are the worst for the Nano caps and become less and less problematic moving into the Micro and Small cap space.

Never forget that stocks are shares of ownership of a business – a business that is turning inputs into more valuable outputs... hopefully. It is something worth reminding ourselves over and over again as investors because once we shrink our universe down to the nano realm, it *feels* like a different world: comically-large price swings and shares listed at fractions of a penny. The Nano caps are not listed on the centralized NYSE or NASDAQ exchanges and are instead traded in the “Over-The-Counter” (OTC) market through broker-dealer networks with different levels of risks, like limited filing requirements, that opens up the possibility of fraud, pump & dumps, and unreliable information. People at any company of any size can commit fraud, but we should be extra careful when the rules are relaxed. Tickers are searchable on the "OTC Markets" website (www.otcmarkets.com) to get some more info, though it usually won't be much – an analyst’s worst nightmare. There are minor differences between brokerages when it comes to OTC market trades, but those are typically more of an issue for day traders. The big-name brokerages like TD Ameritrade, IBKR,

Fidelity, and Charles Schwab, can trade OTC though some do have restrictions, for example if companies do not file their latest financials (the OTC markets website will show this with a STOP sign).

Mindset Shift For The Small Cap Game

If the price swings, fraud, manipulation, and illiquidity doesn't scare you enough, there is still a mindset shift required to play with small stocks. We are shifting from the Buffett-style "know everything" approach to the VC-style "filter everything" approach. That feels uncomfortable in an information-overloaded world where our eyeballs are constantly absorbing the news, narratives, and nonsense through 100 different screens. *Most* of the companies we pick will eventually become bad companies that fall off our filter. That is true for any size company on a long enough timescale: just like the law of gravity, what goes up must come down (or get acquired… or liquidated), but it happens on a faster timescale the smaller the market cap. The strategy bets that these high ROIC companies will continue high-level performance for *long enough* that their value creation is reflected in their share price before they eventually go rotten. Only a tiny fraction of these companies will make it to the big leagues, and we must go in with that expectation even as we do our best to remove the rotten apples.

Investing in these companies lacks the glamor of investing in the big names whose products we use on a daily basis or read about in the news, but that is a natural extension of the *pixelated truth*: the goal was never to become an expert on the business. Following the 80/20 Rule, we put our energy into quickly removing rotten apples while accepting that zooming in on a pixel doesn't actually give us meaningful information to predict the future – especially for small companies with big market inefficiencies. But if you would rather take stock picking advice from Warren Buffett than a blindfolded

dart-throwing monkey, no one would judge you.

Key Takeaways From This Chapter:

1. The VC's Playbook: for extreme payoffs (explosive upside & downside), some diversification can increase returns by reduce risk – no tradeoff necessary
2. There is big opportunity with small stocks: less competition from big money and plenty of room to grow
3. If you can stomach the volatility (not "risk") then the small cap premium gives the best of both worlds: high growth (like Silicon Valley) and measurable numbers on value creation (like Wall Street)
4. There is no free lunch, so carefully consider tradeoffs, such as illiquidity and unreliable information, when investing at the smallest scales

5

HOW TO EVALUATE A STOCK IN 60 SECONDS

Your friend asks, *"What do you think about this company?"* They are interested in buying the stock and want to know your thoughts. How do you respond? Unless you happened to be reading through the company's income statement the night before, you would probably do what anyone else would and start with an anecdote: *I used their* [widget/software/service] *before and I* [hated/loved] *it so much!* If the company was in the news recently, you may respond with either *It sounds like they are expanding*, or maybe *Didn't they just lay everyone off?* You might check what the stock price has been doing – last week, last 3 months, last 5 years – and look for a pattern to form your opinion.[1] Or maybe you just tell your friend to come back tomorrow because you need a day to comb through years of financial statements and earnings call transcripts before you can say anything.

The purpose of this chapter is to extend our *pixelated truth* and learn how to evaluate any stock in 60 seconds. That may sound foolish… It isn't even enough time to read the company's Wikipedia page, let alone learn the intricacies of the business model! But our goal isn't to stare at *blurry pixels* until we form an opinion. We have seen the power of an 80/20 Rule approach to determine if a stock is a rotten apple based on a single number, so it shouldn't be a surprise that we can apply the same technique to form a big-picture opinion on the company. After the 60-second evaluation, we will know whether or not the stock is a hard pass for our own strategy, and can give your friend a useful answer with

some key thoughts and questions to guide any deeper research.

Essential Data For A Stock's "Complete Medical History"

You Are The Doctor And The Company Is Your Patient

Like any human, companies follow a natural growth cycle: the young and boisterous startup is ready to take on the world. As the company grows and learns, it finds a productive niche that (usually) adds value to society. Time goes by and the company gets older, slower, and less flexible to adapt until eventually "going out of business." Let's imagine that we are the doctor trying to determine the overall health of our patient, the company. We can't follow the patient around all day recording every calorie flowing in & out of the business, monitoring any indigestion that slows operational efficiency, and documenting every earnings movement. Instead, we only get an occasional check-in – a physical examination – that provides an update on how the business has performed and if there were any meaningful changes since the last visit. However, if we want to understand the patient's overall health condition, we need to look at their *complete medical history* – and that doesn't just mean the last quarter's calorie flow statement. The complete history means a snapshot of the vital information across the *entire life* of the company that allows us to see long-term trends.

We can't use past trends to predict the future since that depends on uncontrolled external factors and how the patient chooses to allocate their calories. But from a snapshot of the complete history we can better understand what shaped the company, and how they responded, to get to where they are today. So even if we can't say exactly how healthy the company will be in 1, 3, and 5 years, we can get a sense of how resilient the business is to an unknown future.

Look Past Yesterday's Nonsense News, Noise, And Narratives

When I first started working in finance, the portfolio manager asked me to research a stock that aligned with the fund's strategy. I was warned beforehand: just *understanding* the business model is hard. Many companies, purposefully or not, somehow manage to obscure *what they do*, how they really make money, and it requires a surprising amount of analysis and interpretation to figure it out. Even Buffett admits to looking for simple business models that he can easily understand – the 1-foot bar that he can step over rather than a 7-foot bar that requires a lot of effort. If you start digging through company news with the hope of learning something fundamentally important about the business, you will be disappointed. Most of it is *empty fluff* like "revenue grew by 9.8%, below analyst expectations of 10%" that could easily be searched online and reported by a computer. Seeing my frustration with all of the noise, my mentor said: "if you really want to *know the business*, go read the 10-Ks and 10-Qs" where companies remove the doublespeak and clearly state the risk factors they worry about. Some investors actually refuse to read these because they are afraid they scare themselves out of ever investing in the company! That sounded like a great shortcut to cut out the noisy nonsense news, but after pouring over the K's and Q's I realized I was zoomed in on a blurry pixel. *Precise* information can make you an expert on the business, but that doesn't mean you can make *accurate* predictions about the future. Nonetheless, the *vital* information on our company patient can be found in these filings.

To put together a snapshot of the complete medical history, we need to think about *what* information we consume, as well as *how* we consume it. The first "consumption tactic" is to ***expand the timescale*** so that every data point counts. That means we *stop checking the price* every day, and it is why the strategy trades (if necessary) 4X a year when our patient has a quarterly physical – we ignore the noisy price data, nonsense news, and analyst

narratives in between. While an unpredictable event can happen on any random day, for the most part we are only learning something about the company's actual health with the quarterly filings – in particular, if they were able successfully *respond* to the unpredictable (with robust systems and a strong moat). Checking in finer detail risks turning you into a *stock market futon*: short-term trading based on long-term fundamentals leaves you with the worst results of both!

Even after filtering the minute, hour, daily, weekly, and monthly noise, there will still be fluctuations on the quarterly and yearly timescales, but we are starting to zoom out and see how the pixels fit together. The second "consumption tactic" is to ***remain agnostic and skeptical*** as much as possible. We want to see long-term patterns and trends in the vital information for our patient, but we don't want to construct a narrative based on more information than the pixels give us. No one really knows how the next quarter, year, or decade will shake out. We may notice patterns in the snapshot lined up with when CEO A left and CEO B took over, when a trade war created panic disconnected from fundamentals, or when a new product hyped by analysts finally launched and flopped... But for our pixelated strategy, *we don't care*. We don't care about *why* the history of the company unfolded the way it did because understanding *why* is very hard in a complex system.

Narratives can't be scientifically tested, and we don't need to have an opinion on everything. The talking heads on the TV will say the stock is headed for disaster because customers are angry, the business model won't scale, and management's head is up its rear... Filter out the noisy narrative from the *fearful*! When those same talking heads do a 180 and say the company's growth cannot be stopped, competitors will be wiped out, and the price is going to the moon... Filter out the noisy narrative from the *greedy*! Let the numbers tell us whether or not it's a rotten apple. Companies can be clever, creative, and lucky to pivot at exactly the right time

with an unpredictable event. Companies can also have an allergic reaction to making profits and get hammered when the free money well runs dry. So we don't care about *why* the numbers move, only *if* they move! That is what the pixelated truth is all about: consume the least amount of information needed.

Where To Find The Right Historical Stock Data

We don't need the latest CEO tweet, analyst rating, or company press release telling us how great things are (always) going. And we don't need to pay an arm and a leg for *information overload* with expensive platforms like the Bloomberg Terminal. There are plenty of tools that are cheap, even free, to get all of our patient's vital information. As discussed in the chapter "How To Filter Bad Companies," our strategy only requires a handful of numbers: ROIC (and WACC), invested capital, revenue, gross margin. These can all be determined from the information in the financial statements. To construct our complete medical history, we want this information *over time* for each quarterly filing. The hardest part is assembling the data. If you have some coding experience, then there are plenty of APIs available to pull the data to your liking. If you just want a tool that does all the data collection & graphing for you, then see the last chapter (section "Here's What To Do Next") where I'll show you how to access the tool I use. But I want to emphasize: this information is *all out there* with a simple search. Here are just a few sources for historical fundamental stock data that you can look into for you all of you information needs:

SEC EDGAR

- www.sec.gov/edgar/searchedgar/companysearch
- Everything publicly filed with US government, e.g. 10-K & 10-Q
- All the data we need, but requires the most effort to process

Recent Fundamental Data

- Finviz
- TIKR
- Yahoo Finance
- Google Finance
- GraphFundamentals
- MarketWatch
- Seeking Alpha
- Morningstar
- TradingView

Financial Data APIs

- EOD Historical Data
- Polygon
- Twelve Data
- Finage
- Intrinio

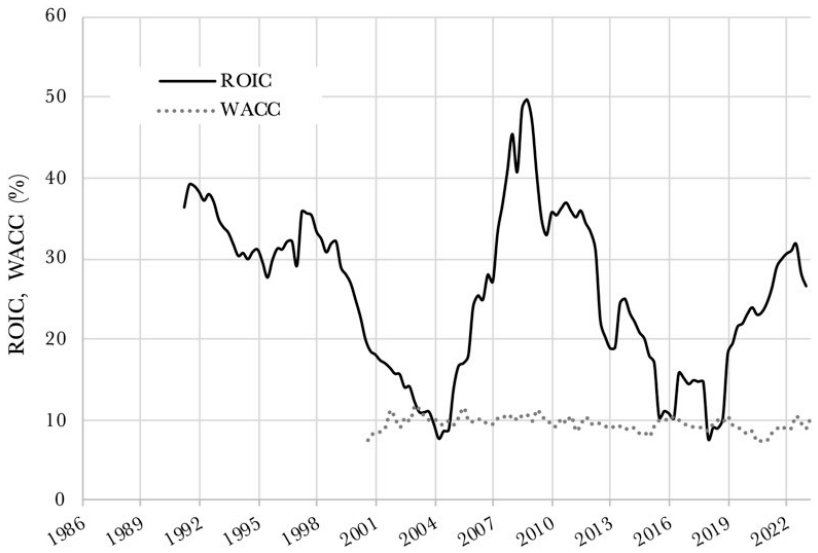
60-Second Countdown To Evaluation

With the vital information for our stock's complete medical history in hand, we can graph the trends over time to perform our evaluation. Now the fun part: let's set the timer for 60 seconds. I've broken the plotting process down into 10-second increments for the amount of time it takes to interpret the historical snapshot's trend for each piece of data. The example I'll build for you uses real data from a mystery company that is revealed at the end of the chapter.

60 Seconds Remaining: Graph ROIC and WACC

With 60 seconds on the clock… We start with our most important quality parameter and plot the lines for ROIC and WACC over the

full history of the company with each data point representing one quarter.[2] We would like to see a ***high and steady ROIC*** with a nice buffer above WACC suggesting the business has a "quality moat" that offers protection from high interest rates through a high rate of return by reinvesting in the company.



Mystery Stock: ROIC and WACC.

Example: Looking at the mystery company we see that ROIC data from 1991 to 2023 covers a wide range with a low of 8% and high of nearly 50%. There are a couple crossings below WACC and some near-touches, but knowing nothing else about this business it is pretty safe to say this is overall a high-quality company. If we wanted to follow our ROIC filter strategy, for example buying and selling above and below 20% ROIC, then we would have roughly[3] made the following trades:

Backtest: ROIC $>$ 20%

- Buy in June 1991, then sell in Sept 2000
- Buy in June 2006, then sell in March 2013

- Buy in Sept 2013, then sell Dec 2014
- Buy in Sept 2019, hold until March 2023

So that is how we would have traded this stock for over 3 decades according to our super simple filter. In hindsight, we see that even the "brief" reversal of ROIC in 2013-2014 still meant holding the stock for over one year. When viewed on this scale, we see that this process is truly *long-term* investing.

Watch out for short-term fluctuations! This is not a huge issue with our mystery stock, but it is something you will encounter as you start looking at other snapshots. Taken at face value, ROIC is a meaningful number describing the business as a money-making machine. But we should not forget that it is a *ratio* of two quantities: profit (NOPAT) divided by invested capital (IC). If there is a massive change in one of these, then the ROIC can jump or crash dramatically. This is not uncommon with commodities, especially if the business has a low Gross Margin. For example, a large *jump* in ROIC, rather than a smooth rise over multiple quarters, could mean the company got *lucky* with a supply shortage for their product. Revenue, margins, and profit all jump (even if invested capital stays the same) so it looks like the company is suddenly high-quality even if it isn't *sustainable*. Earlier we compared this to the lottery winner who didn't know how to manage their windfall and spent it all. Some may be able to adapt, but that could require a big change in the company's systems.

At the risk of trying to over-interpret the chart, if there *was* a high, discontinuous jump in ROIC, I look to see if it is "reflected" – meaning on its way back down to earth it has at least bounced back up (ideally more than once). The saying goes "don't catch a falling knife," so a bounce would suggest the windfall profits are not completely disappearing and ROIC is leveling off – otherwise ROIC would have continued to crash to its previous range. This starts to sound like technical analysis chart reading, so before I

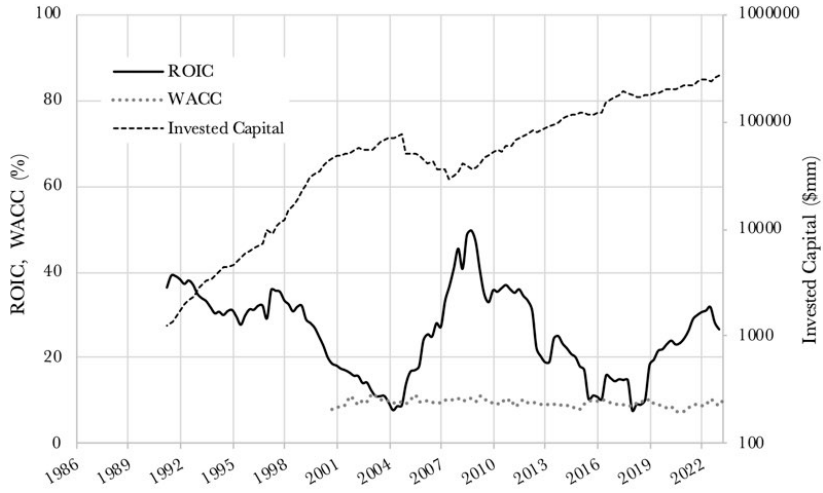
start seeing cup and shoulders let's just say the point: any signs of *stability* – evidence the high ROIC is steady – make us more comfortable that the business really knows how to allocate capital.

50 Seconds Remaining: Add Invested Capital

With 50 seconds left on the clock... We looked at the ROIC trend and already have a sense if this is a rotten apple "bad" company that we should pass on or a potentially-interesting high-ROIC opportunity. Next we plot the Invested Capital (IC) to check if the company is reinvesting in itself to take advantage of that high ROIC.

But first, a message from our sponsor: the logarithmic scale. Just as we saw from the long-term compound returns of our small cap backtesting strategy, we need to respect the exponential. If we expect something to compound over time, then ***graph on a logarithmic scale!*** We expect stocks to compound, yet I see graphs of historical stock prices plotted on a linear scale all the time and it drives me crazy... Remember that the log scale compresses larger numbers on the vertical axis so that a *straight* line actually corresponds to *exponential growth*. If the slope of the line is steep, then it is a very fast exponential, and if the slope of the line is nearly flat, then it is a very slow exponential. Graphing on the log scale allows us to *immediately* pick out straight lines by eye to find exponentially-growing patterns. Our monkey brains are not wired to see exponential growth, so it is near-impossible to quickly and accurately identify an exponential on the evenly-spaced (linear scale) vertical axis. But worst of all, plotting historical data for an exponentially-growing number (like stock price, revenue, invested capital) on the linear scale creates a massive ***recency bias***: it looks like all of the action happened in the last year, and everything from a long time ago is just a tiny blip on the graph. That doesn't mean the past wasn't important – it just means we are plotting the wrong way and cannot absorb the true history. If it compounds for

a long time, then please (please...) just log it.



Mystery Stock: ROIC, WACC, and IC.

Example: With IC plotted on the log scale we can pick out a couple periods of exponential IC growth (straight-*ish* lines) as well as a period of decline from 2004 to 2007. Just like how a big difference between numbers shrinks down on a log scale, a small drop on the log scale is huge on a linear scale. So the decrease in IC from 2004 to 2007 is large, dropping by -62%.

At the risk of oversimplifying, I tend to put *steady* ROIC/IC trends, either increasing (+) or decreasing (—), into four buckets:

1. Wind In The Sails! ROIC (+) and IC (+)

A beautiful voyage! ROIC and IC are climbing together which means that even though the ROIC denominator (IC) is increasing, the numerator (profit) is growing *even faster*. The business model is "clicking" into a solid feedback loop: more capital is invested, and even more value is created. A good company gets better!

Example: For our mystery stock, this situation only seems to happen at the start of 2018 (and ROIC doesn't rise above WACC

until late 2018).

2. Coasting Along… ROIC (—) and IC (+)

Coming off of an ROIC high, the company is still reinvesting in itself, but the profits are not keeping up as fast with the increased capital that is being put to work. Profits are still there, but the company could be dealing with challenges of scale or saturating the market. This can still be a great ride as the company harvests the long-term value created by those seeds planted earlier. However, since profits are not growing as fast,[4] we should keep our exit/trim strategy in mind – especially because, all else being equal, we can put our cash in another company already going through situation #1.

Example: For our mystery stock, this situation happens from 1991 to 2004, and again from 2009 to 2018.

3. Trimming Sails… ROIC (+) and IC (—)

If IC is dropping, then debt and shareholder equity is falling. If ROIC is also growing, it could mean a number of things. But because the ROIC denominator is shrinking, then we expect ROIC to jump if the numerator (profit) is constant. It therefore takes less capital to produce the same (or more) profit. So the company may be adapting to become super lean and efficient, cutting debt or buying back shares[5]... But with less capital to put to work, it could mean that profits are going to take a hit next as ROIC returns to the previous steady value (or the wheels are coming off as shareholder equity evaporates). We can't predict the future, but I would be more cautious with this situation as a potential exit/trim and again favor other companies in situation #1 – plenty of fish in the sea!

Example: For our mystery stock, this situation happens from 2004 to 2009.

4. Abandon Ship! ROIC (—) and IC (—)

Invested capital is shrinking, but profits are shrinking *even faster*. If ROIC is on a collision course with the WACC iceberg then *get to the lifeboats!*

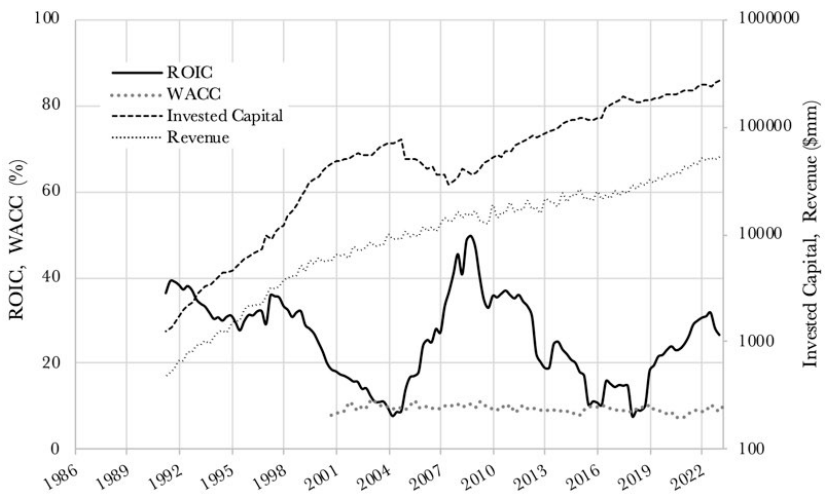
What about a company with high ROIC but flat IC? That is like a star athlete who would rather sit behind a desk and not use their skills! If a large company is running into limits for their top-line growth (we will look at revenue next), then it doesn't make sense to keep reinvesting in their systems – the money is better off returned to shareholders who can find a more productive place to put it. That being said, the company has *already* invested capital to get to this point, and the profit returned on that capital *is* exactly the ROIC. So if nothing else changes, we would expect the business to continue spitting out profits at a return of the ROIC percentage: a stock with a steady 20% ROIC and flat IC should still return 20% every year[6] – for example, through dividends or share buybacks – just not compounded into the company's IC. Then there are the discontinuous IC jumps. An IC *spending spree* – a large and immediate jump in invested capital – will reduce ROIC, so it becomes a judgment call based on the longer-term ROIC trend. It can take years for the profits to catch up and ROIC to return to levels seen before (if it even *does* return), so consider how close ROIC is to the threshold limit and WACC.

40 Seconds Remaining: Add Revenue

With 40 seconds left on the clock... We have determined if this is a good company that is reinvesting in itself. Next we add revenue, the company's top-line sales, from running the business. In the previous chapter we saw the advantages of small cap companies that, we expect, have plenty of room to grow compared to the mega caps. Compounding profit has to come from somewhere – you can't "cut your way to growth" – so revenue is ultimately the fuel that powers the ROIC/IC engine through an enduring and prosperous feedback loop. By plotting on a *log scale*, we can

immediately identify the signature of exponential growth by simply looking for straight lines.

As companies grow larger and face challenges compounding revenue, we start to see a deviation from the exponential rate. This could be a slower exponential, meaning the slope of the line becomes less steep, or even an ***exponential rollover*** where the straight line starts to round out and plateau.[7] We can't predict the future, so it is always possible that the company will discover new opportunities that can meaningfully increase revenue at the same scale... but since we have the freedom to filter and choose whatever companies we want, why not favor those with a clear exponential behavior?



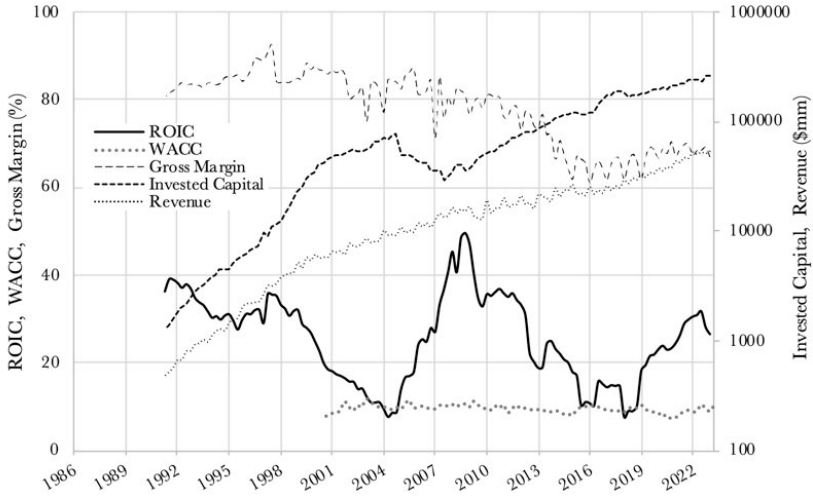
Mystery Stock: ROIC, WACC, IC, and Revenue.

Example: The revenue for our mystery stock looks exponential. I count 3 different phases (rather than a smooth rollover, but you may disagree): 1991 to 2000 with the highest slope, then 2000 to 2014 for the lowest slope, and then 2015 and beyond the slope seems to pick up again. This is fantastic revenue growth sustained for over 3 decades.

For high-growth companies, especially in software (easy to digitally scale), it is common to see both IC and Revenue as two perfectly straight lines. Both are increasing exponentially in lockstep as the company *grows at all costs*. It is a fun ride until the growth rollercoaster slows – it always does eventually – and the herds of analysts change their narrative. So exponential growth is fantastic *when coupled* with high & steady ROIC: no matter what analysts speculate about the future price, the business is at least profitable and creating long-term value that will eventually benefit shareholders.

30 Seconds Remaining: Add Gross Margin

With 30 seconds remaining we add our other quality metric, Gross Margin, to get a simple sense of the company's competitive moat. If the gross margin has been steady above 40%, then it's a good sign the business has a decent moat. There are always exceptions to the rule: Costco with a 12% gross margin has created a powerful moat through customer satisfaction and a simple, yet effective, business model. As we know from our apples in a barrel principle, we inevitably throw out some good opportunities in the process of quickly removing the easy-to-spot rotten apples. So for this step we just want to check if there is a trend of *moatiness*. If the margins show a clear trend downwards, then that could be a clue that the market is growing increasingly competitive.

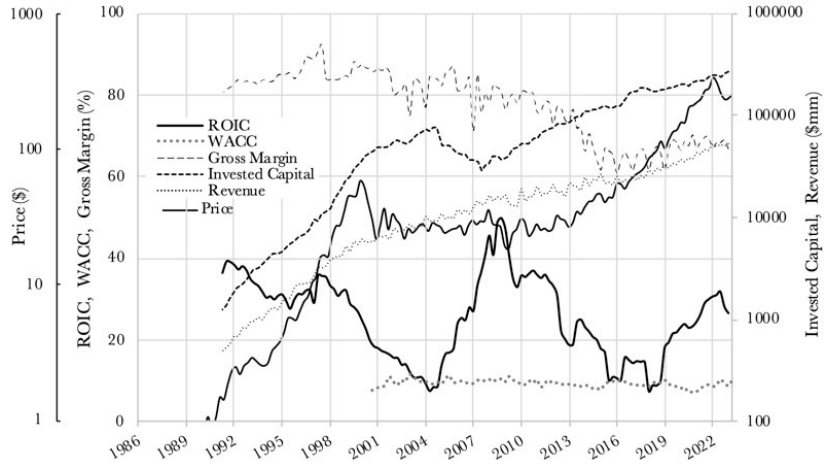


Mystery Stock: ROIC, WACC, IC, Revenue, and Gross Margin.

Example: Our mystery stock has maintained a *very* high gross margin over the years, hovering around 80% for 20 years and only in the past 10 years has it dropped to the 60-70% range. No red flags here – further support that this is a high-quality company.

20 Seconds Remaining: Add Price

With 20 seconds remaining on the clock, we now add price to the graph – also on a *log scale*. Hey, what happened to *stop checking the price*? We are forming a complete medical history of the patient, so even if we don't use the price for an investment decision with this strategy, we can still learn interesting things about how the history unfolded.[8]



Mystery Stock: ROIC, WACC, IC, Revenue, GM, and Price.

Example: For our mystery stock, we clearly see that the near-exponential growth of the share price was fastest right up until 2000 – in fact, it was quite explosive! Then the stock traded sideways for a decade and picked up steam over the last 10 years. Any guesses on what the ticker is? If we instead plotted the price on a *linear* scale, it would be impossible to see the historical data going back this far in one simple picture. By using the log scale we can see, and appreciate, what happened to our patient in the distant past.

I'll admit it: our patient's complete medical history is getting a little crowded and starting to look like doctor's handwriting! We still want to follow the pixelated truth and avoid information overload, so keep in mind that this is a complete snapshot of a company that has been around for well-over *three decades*. The point is not to include every piece of information – just the key pieces that help us see long-term trends related to the investing strategy of this book. Hopefully the final snapshot is not *too* overwhelming after walking through the process of building each step.

Now imagine you were seeing this historical snapshot for the first

time. How would you interpret it with fresh eyes and what conclusions would you draw? For example: the mystery stock has been a great company with high ROIC and gross margin throughout its history. To this day, the company is maintaining the positive ROIC/IC feedback loop ("*wind in the sails*") supported by exponentially-growing revenue. However, the revenue and IC growth has never been as explosive as it was before 2000 ("*coasting along*..."). We can interpret all of that pretty quickly without even checking the price.

Can you think of any follow-up questions to help guide the friend who asked for your opinion on this stock? For example, "how did the business model change over the past 10 years?" It looks like the gross margin dropped slightly and the rate of exponential growth (and ROIC) has picked up since then. Or "how limiting is the size of the company?" since we still see exponential revenue growth, but it is not at the level of the early days. Or "why did profits slow over the past few years, and could that be a lasting trend?" since ROIC has come down a bit while IC continues upwards.

Lastly, let's see how our very *crude backtest* would have performed on the mystery stock. Following a "buy & hodl" strategy, we would have bought in March 1991 ($1.4) and held until March 2023 ($254) for a **17.6% CAGR** over 32 years. A great investment! How about the ROIC filter strategy?

Backtest: ROIC > 20%

- Buy in June 1991 ($1.4), then sell in Sept 2000 ($30.2) = non-annualized gain of +2,057%
- Buy in June 2006 ($23.3), then sell in March 2013 ($28.6) = non-annualized gain of +22.7%
- Buy in Sept 2013 ($33.3), then sell Dec 2014 ($46.5) = non-annualized gain of +39.6%
- Buy in Sept 2019 ($139) and hold until March 2023 ($254) = non-annualized gain of +82.7%

Over 32 years this would have returned only 14.1% CAGR... Whoops! What happened? Normally 14.1% CAGR is pretty good, but it looks like we did worse than just buying and holding! Well, we actually didn't hold the stock for 11 of those years. If we instead compute the returns over the 21 years when we *were* holding, we get ***22.2% CAGR*** from this simple strategy – much better! During those 11 years we should have found other opportunities to invest in and continue compounding.

10 Seconds Remaining: Take A Sip Of Water

For these last 10 seconds: take a breather before moving on to the next ticker! The *pixelated truth* doesn't mean we are experts as a result of this evaluation – that was never the goal. However, by forming a quick opinion about our company patient based on the complete medical history, we can already make an argument for whether *this bet is a hard pass or not* and decide if we want to explore further. We should even have some questions that are guided by our 60 second evaluation: is the high ROIC sustainable or just a short-term burst? Is growth experiencing exponential *rollover*? Are these gross margins stable in the competitive landscape? Why is the company not reinvesting in itself? And so on.

For the big reveal, the mystery stock in this snapshot is... Microsoft (MSFT)! We got to this point without knowing anything about the business model, the management team,[9] the latest earnings projections, the competition, the wave of product launches, and so on. I'm not showing Microsoft because it is the best example (it isn't), but instead because it shows a number of interesting long-term trends in its complete medical history. As we saw from a crude backtest, we would have missed out on a big rally in the share price from 2014 to 2019. That is *perfectly fine* according to the rotten apple filter: we don't care about the rallies we *missed*. Not having a rotten apple in the barrel is more important than

having every ripe apple! We should judge our trading decisions by the choices made with the information we had at the time, not by the unpredictable outcome in hindsight. Good choices will *eventually* lead to good outcomes, and ours is a strategy for the long haul. Even if we sold out of Microsoft during the rally, we would have put our cash into the other opportunities that passed our filter so that we keep compounding.

I've added some historical snapshots of other companies to the Resources at the end of the book. Please take a look and see if you can form an opinion on these businesses in 60 seconds based only on the snapshot. Think about what questions this would lead you to ask about the business if you wanted to do deeper research.

Key Takeaways From This Chapter:

1. We can evaluate a stock in 60 seconds using a handful of measurable and meaningful quarterly numbers presented as a complete historical snapshot.
2. Past trends can’t predict the future, but can show through long-term trends if the business is robust and adaptable (with high competitive and quality moats) for whatever the future holds.
3. The quick opinion from a 60-second evaluation can be used to filter companies and guide additional research.

6

THE SECRET IS THERE IS NO SECRET!

I hope by this point in our journey together, removing noisy narratives and betting on long-term value creation even with an unknown future, you see that this strategy is super simple. There is no magic formula that analyzes weather patterns over company headquarters, no hidden mathematical code in the daily stock volume, and no insider information that can tell you what the stock price will do (at least over the long-term time horizon that matters for investing) since nobody can predict the future. ***The secret is there is no secret!*** All of the information needed for this strategy is in plain sight – the hard part is having the right *mindset*.

Buffett Versus The Hedge Funds

In 2008 Warren Buffett made a multi-million-dollar bet that the S&P 500 index would outperform a portfolio of 5 hedge funds (after fees) over 10 years. Buffett's argument was simple: an *active* investor charges annual fees, performance fees, and added costs from more trading than a *passive* investment in a low-cost index fund. In terms of fees, a fund of hedge funds is the worst offender: the fund of hedge funds charges a fee for picking hedge funds, and those hedge funds making up the fund of hedge funds charge their own fee… Confusing? *Exactly*. Buffett's argument was elegant because it is simple: if the passive broad market index is the average, then the average of active investors must be worse because of their larger fees. Buffett was taken up on the bet with a counter argument: hedge funds are able to go "long & short"

meaning they bet on stock price movements both up & down. So hedge funds should do better during the hard times even if they have lower performance in the good times. Well, to no one's surprise Buffett won: 8 years into the bet the S&P 500 returned 65.7% while the selected group of 5 hedge funds returned 21.9%. By the time the dust settled after 10 years, the S&P 500 returned 7.1% CAGR compared to 2.2% CAGR from the hedge funds.[1] In Buffett's words: "That may sound like a terrible result for the hedge funds, but it's not a terrible result for the hedge fund managers." *Bingo*.

The Buffett versus Hedge Fund bet is one example of a systemic problem of over-financialization that may be partially fixed by low-cost index funds that track the broad market. And if most people want a truly passive investment, then that is the way to go – it is as close to 0% effort as you can get. If you want to put in 100% effort, then listen to Buffett & Munger and learn how to do it the right way. If you would rather put in 1% effort, then follow the *pixelated truth*: zooming in more and more teaches you less and less about the big picture, and we can't predict the future from all of the pixels anyway. The 80/20 Rule guides us on how to get *more with less*, but it still requires managing your portfolio – not just handing money over to the dart-throwing fee-taking monkeys. It requires long-term thinking, non-emotional investing, and diversification done right. But none of that is possible without getting your mindset right first.

Maintain A Compound Mindset

> "*The big money is not in the buying and selling, but in the waiting*"
>
> CHARLIE MUNGER

The odds for the jackpot are 1 out of 300 million, but *someone* is going to win – and hey, you never know! But sadly we do know... As an individual player, we should expect to play the lotto for *2 millions years* before winning[2] – and yet *half* of us play the game![3] It's human nature to search for a shortcut, the path of least resistance, instead of delaying gratification to follow what we already know will work. I recently read about a weight loss drug that you inject once a week, and apparently the richest man in the world is using it. You would think with all that money he could afford a salad and a jog around the block! I speak from experience: I lost 75 pounds going from obese to a body type I'm happy with. Even before I got to my target weight and body fat percentage, I had already realized *the secret is there is no secret*. As cliche as it sounds, I kept telling myself: if I could do this, then anyone else can – and they should be able to do it *better* than me, since I was a sugar addict my whole life. I *wanted* other people to reach their health goals to feel how I felt, to celebrate being the best versions of ourselves together.

So then why does an injectable weight loss drug have a $150 billion market estimated over the next decade (a sweet deal for the pharmaceutical companies)? The truth is that we all know to pick the carrot over the candy bar. We all know to get our heart rates up, lift some heavy things, and stay flexible. Cheeseburgers and ice cream never stop being delicious, just as the lottery ticket – or any get-rich-quick bet – will never stop tempting us. The reason we don't all have superhero bodies is the same reason we don't all have superhero bank accounts: health and wealth come down to mindset. To stick with this (or any other) investing strategy, we need a long-term ***compound mindset*** so that small gains have the opportunity to compound – true for calorie flow, true for cash flow. We saw the importance of graphing compounding numbers on a logarithmic scale because our monkey brains are *linear*: we

can easily recognize the line, but we can't easily pick out exponential growth. And yet compounding, the "eighth wonder of the world," is what makes long-term investing so powerful. Having a compound mindset means that we accept the exponential is hard to see – not just for us, but for everyone else around us!

Example: If I offered you a choice between these two payouts for 16 days, which one would you pick?

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Pay #1	$2	$6	$19	$54	$147	$402	$1,096	$2,980
Pay #2	$1	$16	$81	$256	$625	$1,296	$2,401	$4,096

A compound mindset means we focus on the process rather than a final goal. A good long-term investing strategy should become *clearer with time* because the compounding line becomes easier to see through the market's ups & downs (like we saw graphing the nano cap backtest on a log scale). Thinking about a final goal is like comparing two Days in one of these payouts – it's impossible to tell which long-term trend is better by only comparing two numbers! What matters is how you get there – the *process*. We don't care about a final goal, only that we are following our strategy each day, quarter, and year to maintain a long-term trend. The more time goes by, the clearer the evidence for a compounding trend should become. Just like diet and exercise, there is no secret – it all comes down to keeping a strong mindset by focusing on a successful process, not an end goal.

It turns out that continuing the payout list to Day 9 would give $8,102 for Pay #1 and only $6,561 for Pay #2. Every day after has

Pay #1 giving more than Pay #2 (I intentionally cut it off right before the crossing Day). Pay #1 is the real exponential we are all chasing, while Pay #2 – despite looking like faster growth – can't keep up.[4] By Day 16, Pay #2 gives $65,500 while the real exponential Pay #1 gives $8.9 million – much much more than all of Pay #2 combined!

A Plan For All Seasons

I recall one conversation with a seasoned expert, a portfolio manager with decades of experience managing many billions of dollars. I asked about how we should invest in a market that looked overvalued and *frothy* – a little too bubbly and disconnected from reality. The answer was succinct: "*We don't time the market*." This is one of those nuggets of wisdom that is said more often than it is actually done. To be fair, this was coming from a portfolio manager who takes a slice of the dollars under management as fees, so it is not surprising for someone with that incentive to say "always buy stocks." However, the fact is that there will *always* be well-thought-out reasons for why the stock market should go *up* tomorrow. There will *always* be equally well-thought-out reasons for why the stock market should go *down* tomorrow. And both will be well-researched with a persuasive narrative!

The perennial question resurfacing during a recession or times of high volatility is "how should I invest during uncertain times?" And yet we are *always* investing in uncertain times since no one knows what will happen next! Investing for the long term in a world we can't predict means our ***strategy should be evergreen*** – a plan for all seasons – that doesn't change no matter what silly decision the Fed is making on interest rates, no matter what industry has valuation multiples compressing, no matter what alt-coin is going to the moon. It is a big marketplace, and there will always be opportunity somewhere. If we are truly *agnostic* about what tomorrow will bring, then the decisions we make today shouldn't

rely on reading a crystal ball or listening to the loudest soothsayer – just tune it out!

Our filter was chosen to find businesses with a strong value-creation moat for flexibility to adapt to the unexpected (rather than betting on an expected outcome). If nothing unexpected happens tomorrow, then it's still in the company's best interest to reinvest in itself and grow profits. This means we are not tactically rotating from one sector to another, or from stocks to bonds, based on whatever noisy news the TV is trying to scare us with. The market can go up, down, or sideways; we are *always* focused on owning a piece of a value-creating machine. If the numbers say it's a good company, then it doesn't matter the season!

Don’t Let Emotion Do The Trading For You

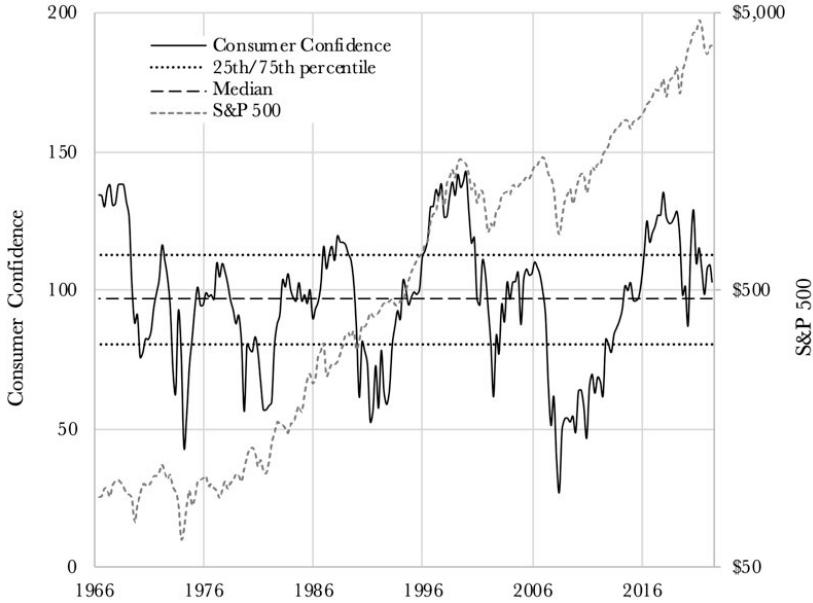
> *"The key organ in your body, in the stock market, is your stomach. It’s not the brain."*
>
> PETER LYNCH

The 1940 book "*Where Are The Customers' Yachts*" paints a picture of Wall Street around the 1929 crash. Gambling with dangerous margin bets without understanding the risk. The dread of ever having any cash and not being fully invested.[5] Chasing momentum swings in price and losing money both ways. Putting faith in the long-term predictive power of a historical price chart. Freaking out when an option goes in the money without an exit strategy. Taking anger out on short sellers for the crash (rather than inflating credit bubbles). Assuming a money manager that lost it all was a crook rather than a fool. And keeping your eyes glued to the price... This all could have been written *yesterday!* The technology has changed since the 1929 crash, but our monkey brains have not evolved at

all. Nearly ***100 years later and the emotional game hasn't changed!*** Want to bet human psychology is finally going to change in the next 100 years?

The strategy in this book is embarrassingly simple. We saw some examples of how it can beat the market over multiple business cycles through 30-year backtests. However, the fact of the matter is that ***we can't backtest our own emotions*** the same way. Would we have bought into a good company even though the price kept going down? Would we have had the discipline to sell a good apple that went rotten even if the stock was going to the moon? It's easy to put ourselves in a hypothetical situation and say we won't let price influence our feelings, but fear and FOMO are highly contagious.

Example: The consumer confidence level gives us a fear/greed estimate for the herd.[6] Since 1966 the confidence level has a median value of 97, meaning half of the time it is above 97, and half of the time it is below 97. Comparing with the S&P 500 index (see image) it shouldn't be a surprise that the herd's *emotions tend to follow the price!* Confidence is low when stocks are low, and high when stocks are high – peaking at the height of the tech bubble and hitting rock bottom after the 2008 housing crash. Emotional investing buys at the top and sells at the bottom.



The Herd's Emotions Follow The Price!

The numbers don't lie: 25% of the time the confidence level is below 81 (herd is "fearful") and 25% of the time the confidence level is above 113 (herd is "greedy"). Yet when the herd is "greedy," the S&P 500 returns an average of 5.3% over the next year. When the herd is "fearful," that jumps up to 10.5% return. Let's take it one step further: 10% of the time the confidence level is below 61 ("very fearful"), and 10% of the time it is above 130 ("very greedy"). When the herd is "very greedy," the S&P returns an average of -0.3% for the following year. But when the herd is "very fearful," the S&P delivers a whopping 17.5%!

By being aware of the outsized role mindset plays in investing, we can hopefully catch ourselves before constructing a pixelated narrative that is disconnected from the business fundamentals. Just as important, we can remind ourselves that *everyone else* in the market is also struggling with their own emotions – so let's use that to our advantage and go against the herd. That's why I find it easier to just *stop checking the price!*

How To (Not) “Di-Worsify”

The most fun I had working in finance didn't come from balancing portfolios, meeting executives of public companies, or thinking deeply about the investment strategies. The most fun came from hanging out with the sales guys. Likable and suave, they could charm the hump off a camel. Riding along with them, I saw first-hand how they pitch the financial products to clients: "Don't like Mid-cap? Well how about this Small-cap/Large-cap blend?" "You just installed solar on your roof? Then let's add a helping of ESG to your plate." "No kidding, I have an uncle in Widgetkistan! And he *loves* our emerging markets fund." And "Do I have to light my hair on fire to make you see how badly you need these munis!" Money managers divide up the universe of investments and re-package them every which way to create a pu-pu platter (putting it mildly) for clients to choose from. It’s all done under the pretense of helping clients through diversification.

We covered Modern Portfolio Theory's risk-reward tradeoff in an efficient market: creating a diversified portfolio to maximize the reward for a certain level of risk by removing positive correlations between the investments. We also covered why it is *nonsensical*: noisy price movements are not "risk," stocks do not follow the bell curve (remember Silicon Valley Bank?) and correlations change during the crash – a falling tide sinks all boats! The best investor in the world has 80% of his publicly-traded stock portfolio in only 6 companies – and he has been even more concentrated in the past. The fact that Warren Buffett has a 20% CAGR since 1965 *proves* less risk doesn't require more diversification – there is no better definition of low risk than a successful long-term track record.[7] However, we also saw how diversification can be a very good thing: venture capitalists betting on small companies with explosive moves get better average returns by diversifying over a large number of startups. *Risk*, meaning the chance of losing it all, really is *reduced* by diversification in this case.

In his book *One Up On Wall Street*, Peter Lynch coined the term "***Di-Worsification***" as a business spreading itself over many different opportunities which ends up weakening the company overall. In the context of portfolio management, we could say this is when *increasing reward by decreasing risk* transitions over into *decreasing reward by decreasing risk*. With that definition, di-worsification means more than the number of investments in a portfolio.[8] After all, Lynch (very) successfully managed Fidelity's Magellan Fund with up to 1,400 stocks while still producing 29% CAGR during his 13-year tenure. Instead it comes down to knowing your own approach *and* understanding the limits of your own pixelated information used to make your decisions. All of our pixels are different from reality, and diversification should reflect that uncertainty. That being said, there is clearly no magical number of stocks to hold!

Example: The math shows that you need to shuffle a deck of cards 7 times to remove correlations between the cards[9] – this is why no one lets me deal in poker... While the individual cards are random, the statistics of the desk are not.[10] So we have a clean and simple answer on what "diversified" means for playing cards. But the randomness of the stock market doesn't follow the same repeatable statistical laws – at least, not for long. There are statistical models that do a much better job than the bell curve, but at the end of the day a model can't predict something outside of itself (see Taleb's *The Black Swan*).

You Only Have One Portfolio

This is a book on a simple strategy to pick winners in the stock market while cutting down your time and effort by 99%. The focus isn't on portfolio management, but while we are on the topic of diversification, I'd be remiss without a final comment on the world outside of stocks. Each and every one of us has a *single portfolio* that goes beyond publicly-traded stocks. That means other

investments: bonds, real estate, private businesses, intellectual property, commodities, derivatives. It even means (forgive the cliche) investing in your best asset found between your ears. All of these together form our single portfolio which can compound for long-term wealth. It doesn't really make sense to talk about risk tolerance and diversification by only looking at a *slice* of your portfolio – we should think *holistically* about our investments across different asset classes that together reduce the risk of stocks (and of each other).

Stocks are an excellent investment; never forget that we are buying ownership of a real business – not betting on a line on the screen! These businesses are *productive assets* taking inputs, adding value, and selling outputs for a profit. If you only own a single publicly-traded stock, but you can start your own company that utilizes your own experience, knowledge, and ambition with a de-risked business model, then your single portfolio may be very low risk despite only two holdings: one public company's stock and one private company's stock — or your own patents, or copyrighted music, or value-add to real estate, etc. For example, my wife and I have our net worth in:

- 10% liquid (including precious metals)
- 40% real estate (rental properties)
- 40% stocks (both public and private equity, small businesses)
- 10% options strategy (trading, not investing)

Those numbers are not prescriptive by any means, but for now they work for us.[11] So we are definitely not *all-in* on stocks; we have some skin in the game, but plenty of skin out of the game (or rather, in other games) where we can put our ideas to work in different ways.[12] My own stock sizing philosophy in my single portfolio is: if I find myself checking the price more often than I would like, then I have too much exposure. Rather than try to fight

my emotions, I accept that my monkey brain has the urge to constantly check and overtrade if I was all-in on public stocks.

Ultimately, what matters is the compounding of this single portfolio. Just like a business (money-making machine) allocating capital for the highest return on that capital, we allocate our own time and money by knowing our edge. That means reducing risk by understanding your own unique skills, knowledge, and mindset. The single portfolio then becomes an allocation of investments that are *more than the sum of the parts*. We'll save a deeper discussion on portfolio management for another book.

Key Takeaways From This Chapter:

1. Just like diet and exercise, there is no big secret! It comes down to mindset.
2. Maintain a long-term *compound mindset* that focuses on the process; the compound effect should get clearer with time.
3. Everyone in the market is struggling with the same human emotions that haven't changed for 100 years (and won't change anytime soon). *Check yourself!*
4. Diversify the right way for you. You have one portfolio and it goes beyond stocks.

7

CONCLUSION: STOP CHECKING THE PRICE!

We have covered a lot of ground: the pixelated truth that most information can be safely ignored since (1) the image gets blurry the more we zoom in, and (2) we can't predict the future from it anyway. We saw how *CAGR is King* in investing, and that by avoiding large losses we increase our reward by reducing our risk – the opposite thinking of the risk-reward tradeoff. This led to focusing our effort on removing rotten apples so they don't spoil the whole barrel. We saved time following the 80/20 Rule by using ROIC as the key indicator for long-term value creation. We took a page from the VC playbook and applied our filter to small companies (fast growth for upside exposure, diversification for downside protection) – but with the advantage over VCs by picking companies that already received market feedback: profitable and high-quality. We played doctor and built a complete medical history to evaluate our company patient in 60 seconds using long-term trends. And finally we stated the obvious: just like diet & exercise, the answer is right in front of us – the hard part is doing it. Maintain a compound mindset for the long-run, don't catch the FOMO, and diversify the right way for you.

ROIR – Return On Invested Research

We are all in a constant state of *information overload* in our lives, and the stock market is no different. While we are led to believe that the person who consumes the most information will best be able to see the future, the laws of the universe just don't work that

way. Markets are complex systems with many interacting individuals driven by many emotions. We've said a lot about ROIC, but this book is really about ***ROIR*** *– return on invested research*. In the pixelated world, working harder doesn't help you understand more. It can even hurt you by overinterpreting a blurry pixel to try and predict the future. Our ROIR diminishes faster than we realize, so we limit our consumption – the news, noise, and narratives – to get more valuable info in less time. We let the financial statements do the talking, not the price. This gives us sufficient information to make sufficiently informed decisions long before our ROIR goes negative. We can't predict the future, but by picking good companies that turn money into more money, we bet the "quality moat" helps them adapt to an unknown future and continue creating long-term value. This "*filter everything*" strategy dramatically reduces the time and effort compared to the "*know everything*" strategy, yet we can still get great returns! If nothing else, I hope our journey together has offered you a different perspective on the benefits of zooming out from the blurry pixels to maximize your own ROIR.

Here's What To Do Next

1. Now that you *know what you don't need to know*... Go forth and profit! Whether you follow the strategy in this book or just leave with a different perspective on information overload in the stock market, I wish you the best of luck picking winners!
2. Please rate this book and leave a **Review** to let me know if the content was useful to you. I strongly believe in feedback to do better and would love to hear your thoughts to guide future content on investing, trading, real estate, etc. A 5-star review also lets others know the content is helpful.
3. If you enjoyed this book, then please stay tuned for the

upcoming companion strategy book ***"Stop Buying the Hype!"*** on how to make sure we are getting in & out of these great companies at great prices – plus how to manage your stock portfolio.

4. Please sign up for "***Compound Knowledge,"*** our FREE email **Newsletter**[1] so we can stay in touch (scan QR code below). This newsletter provides additional content for the investing journey, updates on my watchlist, and tips on applying the strategy for even better results. You'll also get the latest info on the **Investing Tool** (see below) that I use to pick winners, create historical snapshots, and quickly evaluate stocks.

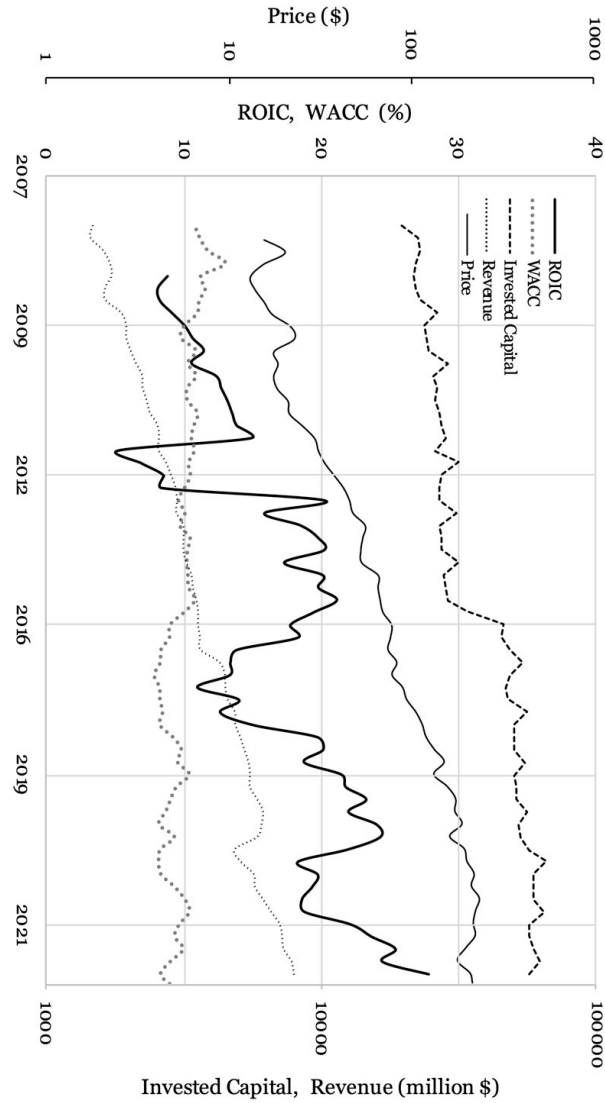
Please join our FREE email newsletter so we can ***Compound Knowledge*** together!

An Investing Tool To Help Your Strategy

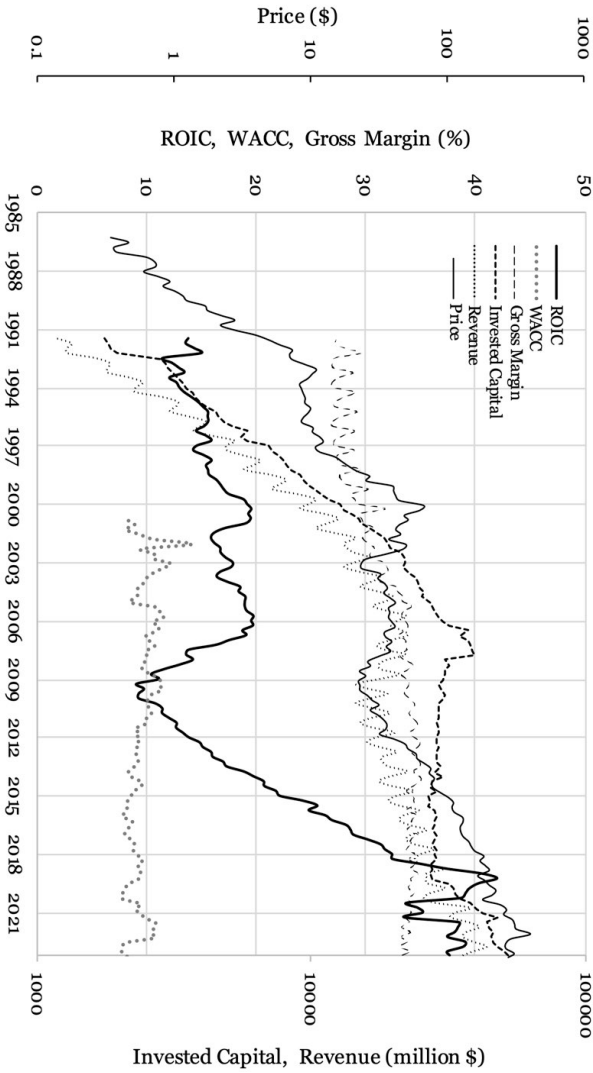
I hope it's clear by this point that nobody needs a fancy Bloomberg Terminal for $27,000/year to be a sufficiently informed investor. I've given you a list of some alternatives to access the historical stock data needed for the simple strategy in this book. However, if you still find those tools are not quickly getting you the information you need, then I'm putting together an **Investing Tool** based on my own setup. The goal is to help anyone implement this strategy: easily filter bad apples and automatically graph the historical snapshot to evaluate stocks (like we did for MSFT) — *without* paying an arm and a leg to Bloomberg. Please join the free email **Newsletter** to receive the latest updates.

EXAMPLES OF HISTORICAL SNAPSHOTS

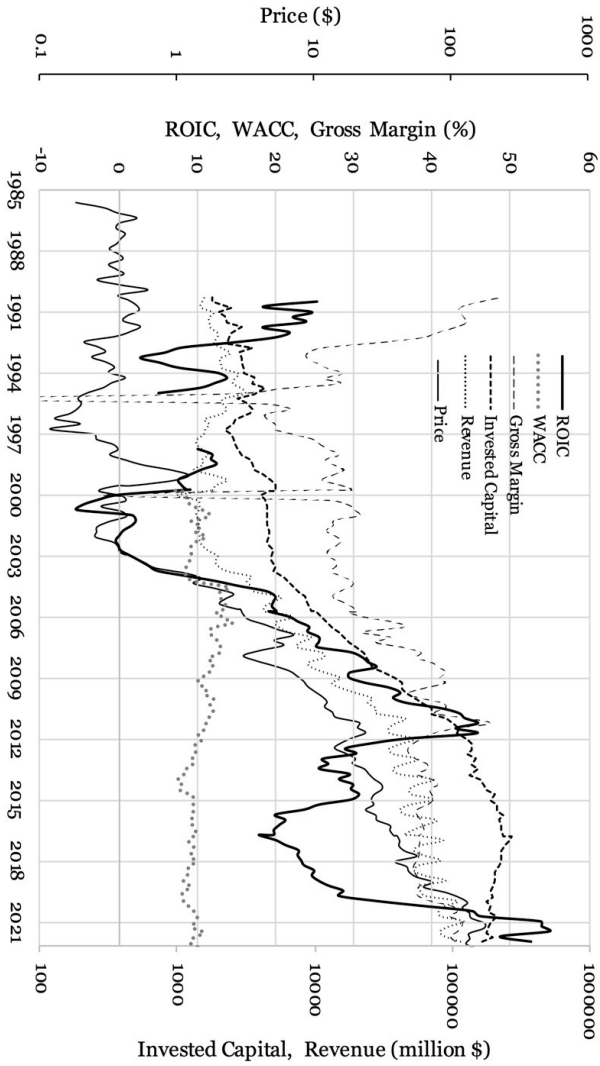
Below are a handful of "medical history" snapshots for some big-name stocks. The data goes back at least a few decades to see long-term trends. I apologize in advance if the lines look like *overcooked spaghetti*, but please see what you can glean from a 60-second evaluation.



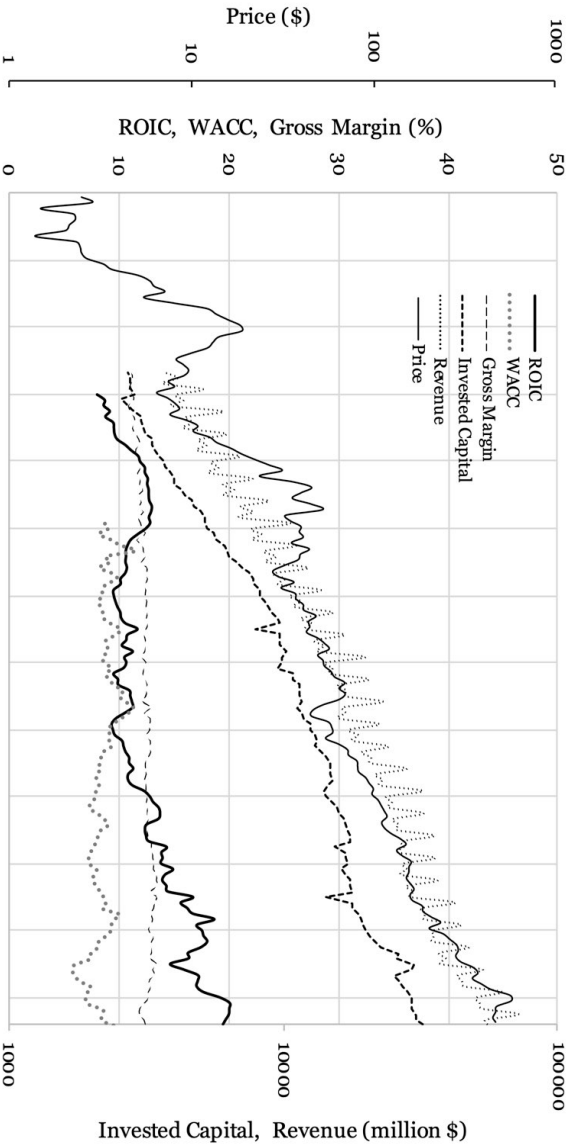
Visa Inc. **(V)** – digital payment and electronic financial services provider



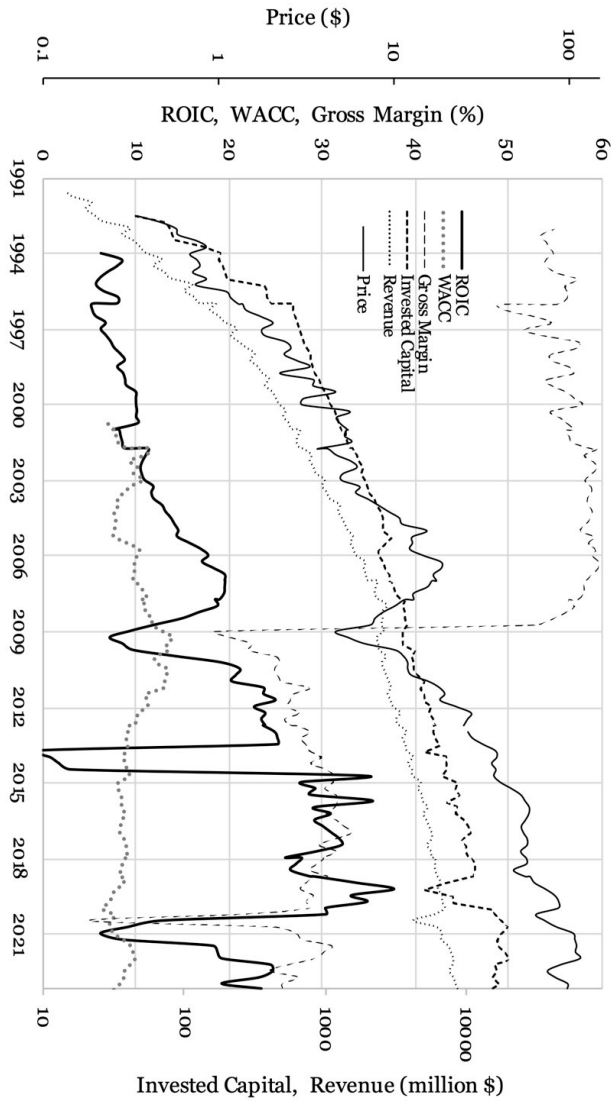
The Home Depot, Inc. **(HD)** – retailer for home improvement, building materials, and tools



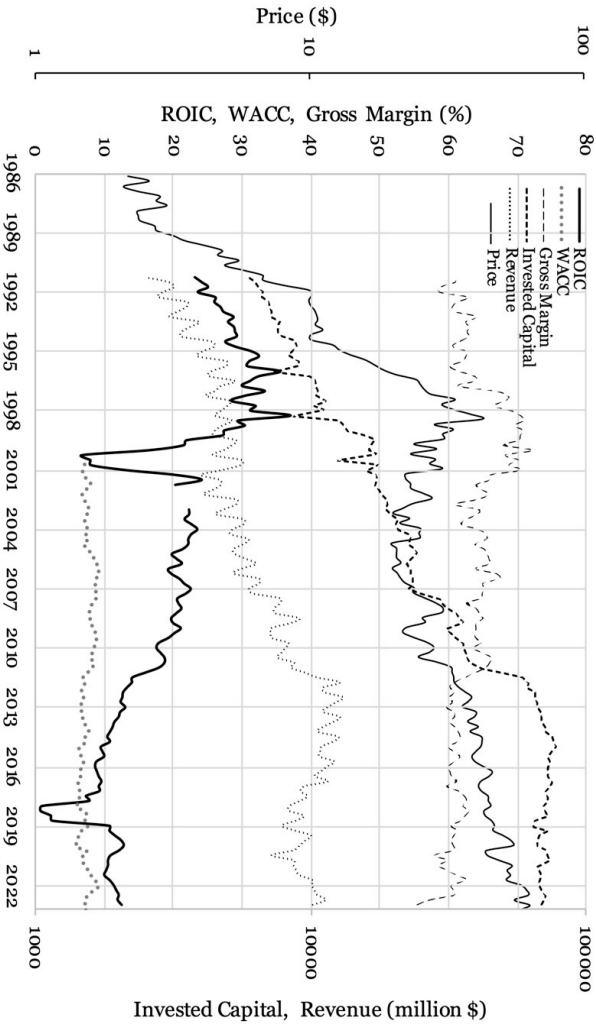
Apple Inc. **(AAPL)** – designer and manufacturer of personal computers and other related hardware technology



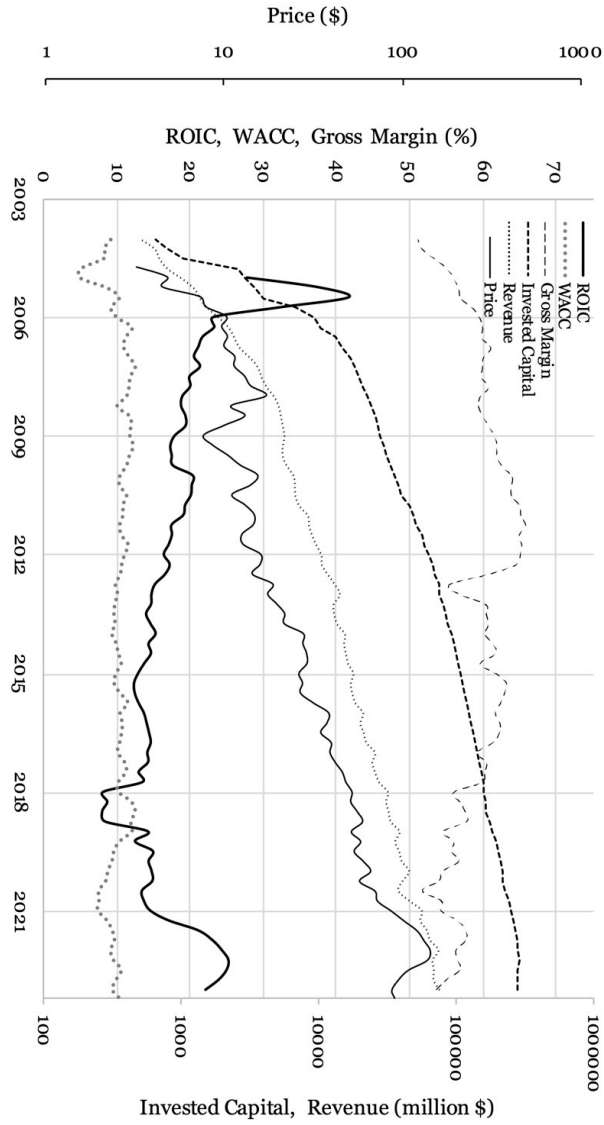
Costco Wholesale Corporation **(COST)** – membership warehouse wholesaler



Starbucks Corporation **(SBUX)** – specialty coffee roaster and coffeehouse chain



The Coca-Cola Company **(KO)** – manufacturer, marketer, and distributor of beverages, concentrates, and syrups



Alphabet Inc. **(GOOGL)** – provider of web-based search, smartphone operating systems, and other internet-based services

PLEASE LEAVE A REVIEW

Thank you for making it this far in the book! I hope you have learned something new from the content and find it helpful for your own investing journey.

If you enjoyed the book, then I want to humbly ask you to **please leave a review**. This goes a long way towards helping others discover the book by letting them know that the content isn't complete fluff. Even a brief review and 5-Star Rating would be helpful feedback to show this endeavor is creating value and interest for its readers.

This book was a joy to write, and I look forward to publishing more content as we dive deeper into these ideas together.

Thank you so much!

OceanofPDF.com

NOTES

1. Introduction: The Pixelated Truth

1 And knowing that what you don't know, you may never know... *ya know?*

2 M.C. Jensen, "The performance of mutual funds in the period 1945-1964," *The Journal of Finance*, 23 (2): 389-416 (1968).

2. Why Do We Lose Every Time We Look?

1 T. Odean, "Do Investors Trade Too Much?" *American Economic Review*, 89 (5): 1279-1298 (1999).

2 T. Millay, "How Over-Trading Hurts Returns (And How To Stop)," *Forbes*, Jul 29, 2016.

3 D. Kahneman & A. Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica*, 47 (2): 263-292 (1979).

4 Volatility is the standard deviation of returns, or inferred from what the gamblers in the options market are implying. A volatility (annual) of 10 means that *if* stock returns followed a bell curve distribution (they don't) then 68% of the time the price would fluctuate between +/-10% over a one-year period.

5 Or max drawdown, the peak-to-trough drop.

6 *The Black Swan* and *Antifragile*.

7 Nyquist-Shannon sampling theorem for signal processing.

8 A. Kueppers, "Blindfolded Monkey Beats Humans With Stock Picks," *The Wall Street Journal*, June 5th 2001.

9 B. Malkiel, *A Random Walk Down Wall Street*, W. W. Norton & Company (1973).

10 J. Weil, "Banks lose billions in value after tech lender SVB stumbles," March 9, 2023.

11 Benzinga Newsdesk, "Goldman Sachs maintains Buy on SVB Finl Gr,

Raises price target to $312," *Benzinga*, March 3, 2023.

12 "Wells Fargo adjusts price target on SVB Financial to $350, Maintains overweight rating," *MarketScreener*, February 15, 2023.

13 The same thinking can be applied to fixed income, like the interest payment (coupon) on a bond. We know the bond's face value paid back to the bondholder at maturity, but bonds can be traded before maturity with a price set by market interest rates, default risk, time to maturity, etc.

3. How To Filter Bad Companies

1 "Why Quality stocks offer higher return and lower risk," *Schroders QEP*, October 2014.

2 B. Jiang and T. Koller, "A long-term look at ROIC," *McKinsey & Company*, February 1, 2006.

3 "Secular" in stock market jargon, meaning not correlated with the business cycle.

4 J. Rotonti, "Why return on invested capital is the most important investing metric," *The Motley Fool*, May 25, 2022.

5 The spread between ROIC and WACC determines the *Economic Profit* = IC * (ROIC - WACC), which is the residual profit after accounting for the cost of capital.

6 Technically the negative ROIC is coming from a negative NOPAT (in the numerator of the ROIC equation), where NOPAT is the earnings if the company was debt-free.

7 If ROIC < WACC, then growth is still not creating value above the cost of the capital, so it is also destructive to the intrinsic value of the business.

8 B. Cao, B. Jiang, T. Koller, "Balancing ROIC and growth to build value," *McKinsey & Company*, March 1, 2006.

9 Of course, these are financial numbers from the *last* quarter, even though Benjamin Graham's "Mr. Market" comes around every day in between earnings reports.

10 More about this at the end of the book, if you are interested in using the same tool designed for this investing strategy.

11 Rebalancing is used in this example for simplicity, but it is a slightly different portfolio management strategy than described earlier (and annual rebalancing gives our winners more time to run).

12 Such as gross margin or even a simple valuation metric (e.g. free cash

flow yield) to get to 17-19% CAGR.

13 Y. Taylor, "A stock-picker's guide to Benjamin Graham's screening rules," *Seeking Alpha*, August 1, 2020.

4. Beat Buffett: How To Outperform The Giants By Thinking Small

1 The max drawdown over that period was -50.8% associated with the 2008 housing bubble and global financial crisis.

2 Berkshire Hathaway Inc. stock BRK-A grew by 35X from $12,600 in March 1993 to $442,765 in March 2023.

3 R. Ferri, "Any Monkey Can Beat The Market," *Forbes*, December 20th, 2012.

4 Ibid.

5 Check out the Fama-French 3-factor model which includes outperformance of small versus large companies (as well as a value term with price-to-book) to describe a well-diworsified portfolio.

6 Actually it is more like 7/10 fail, 2/10 help the fund break even, and 1/10 help the fund break out – still highly skewed!

7 In fact, we have already encountered a power law in this book: the 80/20 Rule is also based on a power law distribution.

8 It would make sense using volatility (standard deviation) if stocks actually obeyed the normal distribution, but alas, we can't tell a complex system how to behave; stocks just aren't *normal*.

9 Or, Lord help us, a single zero day-to-expiration option…

10 For fellow math nerds: when the geometric mean path (over all portfolio constructions at that level of diversification, compounded over time) has the highest return.

11 K. Hassan, M. Varadan, C. Zeisberger, "The pervasive, head-scratching, risk-exploding problem with venture capital," *Institutional Investor*, September 29, 2020.

12 Geometric average (CAGR) which is the median return

13 M. Statman, "How Many Stocks Make A Diversified Portfolio?" *Journal of Financial and Quantitative Analysis*, **22** (3) 353-363 (1987).

14 Though I currently hold 20 stocks for my small cap portfolio.

15 The company has been trading below the tech bubble hype for decades,

so that's another data point for getting out as ROIC trends down: sell when ripe turns rotten. In "*Stop Buying The Hype"* we learn how to deal with the hype for this type of situation anyway.

16 "Average company lifespan on Standard and Poor's 500 Index from 1965 to 2030," *Statista*, August 2021.

17 See "*Stop Buying The Hype*" for a trimming strategy that builds on these filters to achieve even better results. This tells us to sell before the stock gets too "bubbly."

18 Or Level 2 data.

5. How To Evaluate A Stock In 60 Seconds

1 If so, please reread the title of this book. And then re-reread it.

2 Or semi-annual or annual, whatever data is available.

3 Since we get quarterly data *after* the quarter, I'll assume we traded one quarter after the crossing.

4 Or are shrinking, or are diluted over more shares created by the company to increase equity and raise that capital, etc.

5 Share buybacks decrease equity to reduce the number of shares ("shares outstanding"). This gives the remaining shareholders more control/ ownership over the business and its profits.

6 Meaning the business, as a long-term value-creating machine, produces an annual profit equal to 20% of the total invested capital. The share price – based on market sentiment, herd mentality, and hype/crash narratives – is a different story.

7 On the log scale, this means we are *below* an exponential rate, not necessarily that revenue has flattened completely.

8 Only showing (easy to get) data since 1991, though the company did go public a few years earlier. Price is also adjusted for splits.

9 Though for what it's worth, Bill Gates stepped down as CEO in 2000, Steve Ballmer ran the company until 2014, and Satya Nadella took over from 2014 to today. Maybe you can see signs of this in the snapshot, but *be careful* forming narratives about what shapes a complex business in a complex world.

6. The Secret Is There Is No Secret!

1 E. Price, “Warren Buffett Just Won a $1 Million Bet,” *Fortune*, December 30, 2017.

2 Winning, *on average*, one time by drawing 3 times per week. This is called a Bernoulli process.

3 Z. Auter, "About Half of Americans Play State Lotteries," *Gallup*, July 22, 2016.

4 Mathematically, Pay #1 is e^x - 1 (exponential growth, rounded) and Pay #2 is x^4 (quartic growth).

5 From the book: *Rhinophobia*, the investor's disease when "having a sizable cash balance in an account for any length of time is unbearable."

6 Conference Board Consumer Confidence (scaled to 100 in 1985).

7 CAGR is King – the longer, the better. So even if his best performance comes from the early days, all of his decisions compounded together, have withstood a rigorous test of time.

8 And *risk* still means more than volatility and correlations.

9 G. Kolata, "In shuffling cards, 7 is winning number," *The New York Times*, January 9, 1990.

10 Like the lottery: we know exactly what the probability is even if we don't know who will win.

11 This just emphasizes different asset classes, but I really think of it in terms of payout according to Taleb’s “barbell strategy” (for example, 80% allocated to stable investments and 20% to highly asymmetric and explosive payouts).

12 Please stay tuned – we will explore these and other investing topics in later books.

7. Conclusion: Stop Checking The Price!

1 “Compound Knowledge: Compound-Convex Living In A Complex World" https://compound-convex.beehiiv.com/

RESOURCES

1. M.C. Jensen, "The performance of mutual funds in the period 1945-1964," *The Journal of Finance*, 23 (2): 389-416 (1968).
2. T. Odean, "Do Investors Trade Too Much?" *American Economic Review*, 89 (5): 1279-1298 (1999).
3. T. Millay, "How Over-Trading Hurts Returns (And How To Stop)," *Forbes*, Jul 29, 2016.
4. D. Kahneman & A. Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica*, 47 (2): 263-292 (1979).
5. Nassim Taleb, *The Black Swan: The Impact of the Highly Improbable*, Random House Publishing Group, 2nd Edition, May 2010.
6. Nassim Taleb, *Antifragile: Things That Gain from Disorder*, Random House Publishing Group, January 2014.
7. Mark Spitznagel, *Safe Haven: Investing for Financial Storms*, Wiley, August 2021.
8. A. Kueppers, "Blindfolded Monkey Beats Humans With Stock Picks," *The Wall Street Journal*, June 5th 2001.
9. B. Malkiel, *A Random Walk Down Wall Street*, W. W. Norton & Company, 13th Edition, January 2023.
10. J. Weil, "Banks lose billions in value after tech lender SVB stumbles," March 9, 2023.
11. Benzinga Newsdesk, "Goldman Sachs maintains Buy on SVB Finl Gr, Raises price target to $312," *Benzinga*, March 3, 2023.
12. "Wells Fargo adjusts price target on SVB Financial to $350, Maintains overweight rating," *MarketScreener*, February 15, 2023.
13. "Why Quality stocks offer higher return and lower risk," *Schroders QEP*, October 2014.
14. Mark Spitznagel, *Dao of Capital: Austrian Investing in a Distorted World*, Wiley, September 2013.
15. B. Jiang and T. Koller, "A long-term look at ROIC," *McKinsey & Company*, February 1, 2006.
16. J. Rotonti, "Why return on invested capital is the most important investing metric," *The Motley Fool*, May 25, 2022.
17. B. Cao, B. Jiang, T. Koller, "Balancing ROIC and growth to build

value," *McKinsey & Company*, March 1, 2006.
18. Y. Taylor, “A stock-picker’s guide to Benjamin Graham’s screening rules,” *Seeking Alpha*, August 1, 2020.
19. R. Ferri, “Any Monkey Can Beat The Market,” *Forbes*, December 20th, 2012.
20. K. Hassan, M. Varadan, C. Zeisberger, “The pervasive, head-scratching, risk-exploding problem with venture capital,” *Institutional Investor*, September 29, 2020.
21. M. Statman, "How Many Stocks Make A Diversified Portfolio?" *Journal of Financial and Quantitative Analysis*, **22** (3) 353-363 (1987).
22. “Average company lifespan on Standard and Poor’s 500 Index from 1965 to 2030,” *Statista*, August 2021.
23. E. Price, “Warren Buffett Just Won a $1 Million Bet,” *Fortune*, December 30, 2017.
24. Z. Auter, "About Half of Americans Play State Lotteries," *Gallup*, July 22, 2016.
25. Fred Schwed Jr., *Where Are the Customers' Yachts?*, Wiley, January 2006.
26. Peter Lynch, *One Up On Wall Street: How To Use What You Already Know To Make Money In The Market*, Simon & Schuster, 2nd Edition, April 2000.
27. G. Kolata, "In shuffling cards, 7 is winning number," *The New York Times*, January 9, 1990.

ABOUT THE AUTHOR

J. F. Dodaro is an investor and entrepreneur with experience serving on the portfolio management team of an 11-figure equity fund at a trillion-dollar asset management firm.

As a Silicon Valley entrepreneur and CEO, he founded a venture-backed business developing nano-materials for nuclear energy applications.

His investment strategy books apply insights from math and science to wealth-building and simplify the complexity of finance through first principles thinking.

He received his PhD in Physics from Stanford University and Bachelor's in Applied Mathematics from Columbia University.

In his spare time he enjoys piano, guitar, diving, skiing, and contemplating emergence and interpretations of quantum mechanics.